630.5
PAH
V.12

GOVERNMENT BOTANICAL GARDENS
LIBRARY.
Section.....
No.....

INDEX

TO THE

PROCEEDINGS

OF THE

Agri-Horticultural Society of Madras.

Vol. XII (New Series.)

1905-06-07.

Madras:
HIGGINBOTHAM & CO.

1909.

GOVERNMENT BOTANICAL GARDENS
LIBRARY.
Section.....
No.....

INDEX.

	Pages
Agave rigida var Sisalana	1,4,11,70,168,252
,, rigida plantation at Pallavaram	98
,, fibre	70,73
,, fibre machine	218
,, disease	99,229
,, vivipara	73
,, Americana	71
Air-motor, offer from Government	1,11
Ampthill, H. E. Right Hon. Lord	173
Annual meeting	104,159,241
Araucaria excelsa	76
Auditor	83,85,187,193
Baroda gardens, plants to	124
Betel leaf vine to Colombo	212
Bombay Victoria gardens, plants to	82,121
Bordeaux mixture	10
Bottomley, Mr., Grant for Cotton seed	43,64
Boundary wall, erection of ..	48,114,136,139,143,145,149,168,189
,, for Nursery Gardens	43
Budget Estimate	215
Cabbage	38
Calcutta Agri-Horticultural Society, plants to ..	139
Cashier	117,185,195,187,209
,, security of late	187
Caravonica Cotton	29,36,43,51,64,173
Cavanagh, Mr., Provident fund	195
,, ,, seed report	209
,, ,, leave for	13,85,165
,, ,, tour	14,56,187
,, ,, to Baroda gardens	223,225
Chairman	26,117
Chrysanthemum culture	230
Coffee experiments	152
,, Arabi decool Estate	153
,, robusta, distribution of	33
,, robusta from Congo	28
Colombo Agri-Horticultural Society betel vine to ..	212
Committee Meetings ..	1,3,11,13,26,31,43,46,47,48,64,80,83, 85,117,118,120,134,136,143,145,148, 159,173,185,187,189,193.196,198, 209,213,223,225,255
,, New	115,169,255
Correspondence	110,165,249
Corypha umbraculifera	155
Cotton experiment	168
,, cultivation	3
,, Caravonica	28,36,43,51,64,173
,, Caravonica, grant to Mr. Bottomley	43,64
,, Pitha-fibre	43

	Pages
Cotton Snow flake, hybrid	64
,, silk hybrid	28
,, wool hybrid	28
,, Kidney	29,34
,, Thomatis hybrid	28
,, Tree	3
Dalbergia lanceolaria	155
Disease of plants	8,9
Durban gardens, plants to	28
Educating native boys as gardeners	117,118,120
Exchanges	108,164,246
Experimental gardens	113,252
Ex-officio members	169,255
Fancy bazaar plants on loan for	64
Finance	104,159,241
Financial statement, monthly	24,41,62,77,101,104,130,140,156, 190,206,221,239
,, ,, annual	146,160,242
Flower Show	1,4,14,46,47,88,109,165,175,198, 209,226
,, ,, special prizes from Public	1,22,146
,, ,, Government Grant for	4,159,241
Furcrœa gigantea	74
Garden gate near Parcherry closed	120
,, staff	165,189
,, boys, education for	117,118,120
,, progress and condition of	113,158,168,252
Gnanaprakasam	209
Gate (large new), erection of	189
Government grant	4,159,241
Haskings, Mr. J., Acting Superintendent	85,165
High Court gardens, Madras	83
Honorary Secretary	114,159,169,255
Honorary Treasurer	159,169,255
Houghton, Mr. H. E., plants at show	97
Hybrid wool cotton	28
,, silk cotton	28
Kirwan, Mr. L. E.	65,98
Kew Gardens, plants to and from	28,151
Kidney cotton	29,34
Kohl Rabi	38
Lawley, H. E. Sir Arthur	173,185
Leaf pit, new	46
Lemon grass oil	58
Lever Bros., plants to	66
Library	108,163,246
,, Rules	223
Lily Tank	114
Lodoicea	54,114,126,138
Madras Central Agricultural Committee	43,173
Mahogani	80,134,155,187,209
Manickum, T., death of	149,165
Manickum, T., grant to family of	185,187
Mango scale	10
Members, newly elected	2,5,13,28,34,36,46,48,51,67,70,82,85, 114,122,124,125,134,136,145,148, 152,169,173,186,187,195,197,199, 213,215,225,228,255

	Pages
Members, privileges of	26,31,85,145,148,152
,, resigned	169,255
McLeod, Mr. F. M., plants from	151
National Bank, Bankers	209
New plants, introduction of	152,166,249
,, planted out	253
Nitrogen Bacteria	5,168
Nursery improvements	189
,, stock	112,154,165
Obituary	244,255
Office rules	195
Ootacamund Gardens, plants to	84,121
Orchids	39
Ornamental Gardens	113,168,253
Outdoor work	166,254
Palmyra fibre	52
Para seed from Ceylon	13
Pineapple	201
,, fruitlet core rot	126
,, monstrous	126
Plants, stock of	165,165,250
,, newly introduced	152,166,249
,, planted out	253
,, distribution of	166
Presidents	173,185
Prize list	26,46,47,49
Ramalingam, K., appointed	165
Raffia ruffia	2
Rhea fibre industry	70
Rhinoceros beetle	230
Rules of the Society, revised	193,196,209,218,255
Royal visit, decoration for	80,134
Russell, Mr., plants from	151
Sales	166,251
Salanson, Mr. A., Auditor	187
Seed room	138
,, Sub-Committee	87,125,138,193,195,198,218
,, report by Mr. Cavanagh	209
,, failure of	85,87,117,125
Secretary (Hony.)	255
Silk cotton, hybrid	28
Sisal hemp fibre	(*Also see Agave.*) 72,73
Superintendent's notes	3,8,28,34,36,51,70,88,126,138,152,201,218,229
,, Bungalow, repairs to	173
,, new verandah	64
Sowden, Mr. C.	149,169,198
Subscribers' list	115,169,170,256
Succulents	37,114
Sydney Sunlight Works, plants to	66
Tea exhibit	198,205
Tea, Cresswell Co.	198
Thatha Chari's security	209,213
Tomato black rot	9
Treasurer (Hony.)	169,255
Upcountry orders	143,213
Weather	37,107,149,162,244
Water supply	162,245
,, Nursery Gardens	1,4

GOVERNMENT BOTANICAL OFFICE
No. ..... Date .....
Sp. attached .....
Pkt. .....

GOVERNMENT BOTANICAL GARDENS
LIBRARY.
Section.....
No..... .....

The Proceedings of the Annual General Meeting of the Members of the Agri-Horticultural Society of Madras for the year 1904-05, held on the 31st March, 1905, at 7-30 a.m.

The following gentlemen were present:—

The Hon'ble Mr. Justice H. T. Boddam (*in the Chair*).
The Hon'ble Mr. H. Bradley, I.C.S.
The Hon'ble Mr. C. J. Weir, I.C.S.
Col. P. H. Benson, I.M.S.
R. T. Menzies, Esq., *Honorary Treasurer.*
C A. Barber, Esq., F.L.S.
J. G. Smith, Esq.
Chas. Sowden, Esq.
H. E. Houghton, Esq.
G. Narayanasawmy Chetty.
L. E. Kirwan, Esq., *Honorary Secretary.*
P. F. Fyson, Esq., F.L.S.

The Honorary Secretary having presented his Report, Mr. G. Narayanaswamy proposed and Mr. H. E. Houghton seconded, that the report be adopted.—*Carried.*

THE HONORARY SECRETARY'S REPORT.

Government grant.—The monthly grant of Rs. 250 and the extra grant of Rs. 1,000 have been received. A budget estimate for 1904-05 was submitted in August 1904, and the usual sum of Rs. 4,000 was sanctioned by Government.

Finance.—The income from members' subscription has been in excess of that of any previous year. There has, however, been a slight falling off in the income from the sale of plants and seeds, due doubtless to the very severe weather we have experienced.

FINANCIAL STATEMENT

PARTICULARS OF RECEIPTS.	Amount.			Total.		
	RS.	A.	P.	RS.	A.	P.
By Balance with Messrs. Binny & Co. on the 31st Dec., 1903..	1,380	15	3			
,, Balance of Petty Cash on hand on the 31st Dec., 1903 ..	200	0	0			
				1,580	15	3
,, Security of Cashier T. Somasundara Mudaliar deposited with Messrs. Arbuthnot & Co..	750	0	0			
,, Security of Cashier S. Thathachari deposited with Messrs. Arbuthnot & Co.	750	0	0			
,, Security of late Seeds' Clerk with interest from Post Office Savings Bank	207	11	9			
				1,707	11	9
,, Subscriptions from Members of A Class	2,546	0	0			
,, Subscriptions from Members of B Class	417	0	0			
				2,963	0	0
,, Government Monthly Grant for the year 1904	3,000	0	0			
,, Government Flower Show Grant for the year 1904 .. .	500	0	0			
,, Government Extra Grant for the year 1904	500	0	0			
				4,000	0	0
,, Sales of Seeds, Plants, Flowers and Fruit trees, etc. ..	6,052	2	2			
,, Sales of Ichthemic guano ..	105	0	0			
				6,157	2	2
,, Loan of Plants	372	14	6			
,, Out-door work of laying Gardens, etc.	746	8	3			
				1,119	6	9
,, Flower Show Admission Tickets, etc.	..	..	..	863	0	0
,, Interest from the Bankers @ 2 per cent. per annum on floating account	..	..	..	51	10	0
,, Balance with Messrs. Spencer & Co., Ltd., on 31st Dec., 1904.	..	..	..	19	3	8
Total Rupees ..	..	..	..	18,462	1	7

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
Teynampett, 12*th January*, 1905.

(Signed) L. E. KIRWAN,
Honorary Secretary.

FOR THE YEAR 1904.

Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.
To Salary of the Superintendent, Office and Garden Establishment	..	..	..	5,039	8	1
,, Garden Coolies, Permanent and Temporary	..	..	..	1,080	2	10
,, Purchase of Seeds, Plants, Flowers and Fruit trees, etc. ..	..	..	..	1,741	0	9
,, Charges recoverable account ..	..	..	..	1,059	13	1
,, Out-door work account of Labour, etc.	..	..	..	500	4	11
,, Carriage allowance to Superintendent on out-door work ..	26	10	0			
,, Commission to Superintendent @ 2½ % on receipts ..	252	11	4			
				279	5	4
,, Travelling Expenses ..	..	..	..	18	6	0
,, Garden requisites and Garden Expenses	..	..	..	718	1	1
,, Flower Show account ..	..	..	..	1,016	10	8
,, Red Hills Water-supply ..	..	..	..	295	10	3
,, House, Water and Lighting Taxes	..	..	..	45	12	0
,, Packing Materials account ..	74	4	11			
,, Petty Charges and Sundries account	98	13	1			
,, Postage, Stamps and Discount account	219	10	0			
,, Printing and Stationery, Books and Periodicals	621	11	6			
				1,014	7	6
,, Advertisement charges ..	..	..	..	163	6	6
,, Furniture and Plant account ..	..	..	..	399	5	9
,, Audit fees	..	..	..	100	0	0
,, Repairing Ferneries ..	..	..	..	72	8	0
,, Repairing Supdt.'s Quarters ..	..	..	..	1,116	3	3
,, Building account, Potting Shed, etc.	..	..	..	1,000	0	0
,, Securities of Cashiers deposited with Messrs. Arbuthnot & Co.	..	..	..	1,500	0	0
,, Security of late Seeds' Clerk deposited in the Post Office Savings Bank, returned with interest	..	..	..	207	11	9
,, Balance of Petty Cash on hand on the 31st December, 1904 ..	200	0	0			
,, Balance with Messrs. Binny & Co. on the 31st December, 1904	893	11	10			
				1,093	11	10
Total Rupees ..	..	..	..	18,462	1	7

Audited and found correct.

(Signed) THOS. CRONAN,
Auditor.

(Signed) R. T. MENZIES,
Honorary Treasurer.

Weather.—In my last Report I referred to the year 1903-04 as having been exceptionally good for Horticulture. The one now under report has been a most trying one, the rainfall amounting to only 22·53 inches, as compared with 77·63 inches in the previous year.

The temperature during the early part of the year was slightly below the average, but later on the high temperature and the continued drought made the latter half of the year very trying for plants, more especially for those of an exotic nature.

A glance at the tabular statement will show the quantity of the rain and dates upon which it fell during the year :—

Months.	Dates on which rain fell.	Inches and Cents.
January ..	1st, 2nd and 13th	3·52
February ..	*Nil.*	*Nil.*
March ..	*Nil.*	*Nil.*
April ..	*Nil.*	*Nil.*
May ..	25th, 26th and 28th	0·82
June ..	6th, 7th, 8th, 16th, 20th, 23rd and 27th ..	0·69
July ..	3rd, 7th, 15th, 16th, 17th, 19th, 20th, 21st, 23rd, 24th, 25th and 31st.	4·50
August ..	4th, 6th, 7th, 8th, 10th, 11th and 13th ..	3·24
September ..	2nd, 3rd, 5th, 21st and 23rd	2·87
October ..	8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 17th, 19th, 20th, 21st, 22nd, 25th, 26th and 27th.	2·75
November ..	11th	0·40
December ..	7th, 19th, 20th, 21st and 22nd	3·74
	Total number of rainy days 59 ..	22·53

Water-supply.—The heavy expenditure on Red Hills water is due to the extremely dry season. The quantity consumed during the year in the Nursery and Ornamental Gardens amounted in the aggregate to 33,13,000 gallons, showing an increase over last year's consumption of 3,98,000 gallons.

Table showing the amount of water consumed each month.

Months.	Ornamental Gardens.	Nursery Gardens.	Total.
January ..	1,75,600	72,900	2,48,500
February ..	1,24,300	73,700	1,98,000
March ..	1,25,000	73,500	1,98,500
April	1,30,000	1,31,300	2,61,300
May	1,40,300	65,700	2,06,000
June	3,64,400	..	3,64,400
July	1,79,800	93,700	2,73,500
August ..	2,68,400	81,500	3,49,900
September ..	2,50,000	5,000	2,55,000
October ..	2,68,000	86,600	3,54,600
November ..	2,68,800	60,700	3,29,500
December ..	1,85,400	88,400	2,73,800
Total Gallons..	24,80,000	8,33,000	33,13,000

Library.—This section has received the usual amount of attention. The following books and periodicals were bound and arranged during the year:—

The *Gardener's Chronicle*, Vols. XXXIII, XXXIV and XXXV.

The *Gardener's Chronicle* and *Agricultural Gazette*, 1844, 1847, 1848, 1856, 1857, 1858, 1859, 1860, 1861 and 1868.

The North British Agriculturist, 1853.

Proceedings of the Agricultural and Horticultural Society of India, 1894.

The *Tropical Agriculturist*, 1902-03, 1903-04, Vol. II.

Planting Opinion, Vol. VIII.

The *Agricultural News*, Vols. I and II.

Curtis's Botanical Magazine, Vol. LVII.

The Agricultural Ledger, 1903.

Washington Experiment Station Record, Vol. XIV.

The *Queensland Agricultural Journal*, Vol. XIII.

Exchanges.—During the year under review, we have received numerous contributions of plants and seeds for experimental cultivation and in some cases have given plants and seeds in exchange. We take this opportunity of thanking the following correspondents for their generous donations:—

Antigua ...Curator, Botanic Gardens.
Bangalore ...The Superintendent of the Government Botanic Gardens.

Baroda	. The Superintendent of the State Gardens.
Berlin (Germany)	...The Director of the Botanic Gardens.
Bombay	...The Superintendent of the Victoria Gardens.
Calcutta	...The Secretary, Agri-Horticultural Society of India.
Do.	. The Superintendent of the Royal Botanic Gardens.
Calicut	...A. F. Pinhey. Esq., I.C.S.
Cannanore	...The Superintendent of the Central Jail.
Ceylon	...The Director of the Royal Botanic Gardens,
Chickmaglur	...N. G. B. Kirwan, Esq.
Coonoor	...A. G. Nicholson, Esq.
Dublin	...W. Burbridge, Esq.
Edinburgh	...The Regius Keeper of the Royal Botanic Gardens.
Glasnevin	...F. W. Moore, Esq.
Gwalior	...The Superintendent of the State Gardens.
Jamaica	. The Director of the Botanical Department.
Kew	...The Director of the Botanic Gardens.
Kodaikanal	...C. Michie Smith, Esq.
Kushroobagh	...The Superintendent of the Govt. Gardens.
London	.. Col. H. W. H. Cox.
Madagascar	...The Director of Agriculture, Tamatave.
Madras	...C. A. Barber, Esq., Mrs. Gray, L. E. Kirwan, Esq., J. A. Yates, Esq., W. A. Turner, Esq., R. T. Menzies, Esq., G. A. Chambers. Esq., Miss Perkins. Mrs. Wilson, R. Littlehailes, Esq., the Superintendent, Government House and Guindy Park, and the Superintendent, People's Park.
Mysore	...Messrs. N. Venkatasawmi Raju & Sons.
Natal	.. The Director of the Public Gardens and Museum.
Ootacamund	...The Curator of the Government Botanic Gardens.
Paris	...The Director of the Botanic Gardens and Museum.
Peradeniya	...The Curator of the Royal Botanic Gardens.
Pondicherry	...The Director of the Botanic Gardens
Rajputana	...The Superintendent of the State Gardens, Oodeypore.
Saigon (Cochin-China)	The Director of Agriculture.
St. Petersburg	...The Director of the Botanic Gardens.
Salem	.. J. M Nallasawmi Pillay, Esq.
Saklaspur	...Mrs. E. M. Middleton.
Simla	..The Inspector-General of Forests to the Government of India.
Sivaganga	.. A. P. Millar, Esq.
Sydney	...The Director of the Botanic Gardens.
Trevandrum	...The Director of the Public Gardens.
Do.	...The Superintendent of the Agricultural Demonstration Farm.
Udaipur	...The Superintendent of the State Gardens.
Vellore	...The Superintendent of the Central Jail.

Flower Show.—The 66th Annual Flower Show was held on the 27th February in the Nursery Gardens, the arrangements being much the same as those of the previous year. Their Excellencies Lord and Lady Ampthill, accompanied by Capt. Hartley, A.D.C. and a party from Government House, visited the Show in the morning and were conducted round by the Honorary Secretary, Mr. L. E. Kirwan.

The Show on the whole was considered up to the average of previous years. The absence of the Parks' exhibits of large trophies was the cause of several private Horticulturists competing in this section, and their groups of foliage plants, though somewhat smaller, made up in quality for the deficiency and reflected great credit upon the exhibitors.

In the Economic section, Mr. C. A. Barber exhibited (not for competition) a very fine collection of sugarcanes, grown at the Experimental Farm at Samalkot. Botanical drawings of these canes were also shown which made the exhibit a most instructive and interesting one.

His Excellency the Governor's Band was in attendance and played an excellent selection of music.

The Committee take this opportunity of thanking those gentlemen who undertook the onerous task of judging the various exhibits, and also those gentlemen who so generously helped by lending tents, tables, etc., and the Commissioner of Police for his assistance, and the President of the Madras Municipality for having the roads watered in the vicinity of the gardens.

Correspondence.—The correspondence section of the work is gradually increasing; among the numerous enquiries on economic subjects may be mentioned Rubber, Fibres, Camphor and Cotton. The preparation of price lists is now in hand. That on fuel, avenue and timber trees has been completed; that on climbers is now in the press and the following are being compiled:—Flowering and ornamental shrubs, fruit trees and economic plants.

New Introductions.—

Ranunculaceæ	...Clematis Brachyata (Natal).
Anonaceæ	...Anona Senegalensis (Natal).
Menispermaceæ	...Stephania hernandifolia (Bangalore).
Bixineæ	...Oncoba spinosa (Natal).
Malvaceæ	...Trichelia dregeana (Natal).
	Abutilon hybrida (England).
	Turrea heterophylla (Natal).
	Gossypium Peruvianum (Madras).

Sterculiaceæ	...Dombeya Natalensis (Natal).
Malpighiaceæ	...Stigmaphyllum aristatum (Bangalore).
Geraniaceæ	...Oxalis 5 kinds (Bangalore)
Rutaceæ	...Calodendron capensis (Sydney).
	Toddalia lanceolata (Natal).
Celastrineæ	...Catha edulis (Bangalore).
Rhamneæ	...Zizyphus mucronatus (Natal)
Leguminosæ	...Bauhinia Galpini (Natal)
	Do. sp. (Mysore).
	Do. Petersiana (Natal).
	Schotia latifolia (Natal).
	Albizzia fastigata (Natal).
	Calpurnia lasiogyne (Natal).
	Crotolaria striata (Calcutta).
	Erythrina Blakei (Bangalore).
Passifloreæ	...Passiflora edulis (Bangalore).
	Taxonia Von Volxema (Bangalore).
Begoniaceæ	...Begonia Rex Var. (Bangalore).
Cacteæ	...Epiphyllum truncatum (Bangalore).
Araliaceæ	...Aralia Balfouri (Bangalore).
	Hedera ilex (Bangalore).
Rubiaceæ	...Coffea Zanquebarea (Natal).
	...Coffea sp. (Birur).
	Gardenia Thunbergia (Natal).
	...Hoffmania refulgens (Bangalore).
Compositæ	...Cosmea klondyke (Poona).
	Gerbera Jamesonii (Natal).
Oleaceæ	Olea Woodii (Natal).
Apocynaceæ	...Beaumontia Jerdoniana (Bangalore).
	Rhyncospermum jasminioides (Bangalore).
	Vinca major (Bangalore).
Loganaceæ	...Fagræa Coromandeliana (Bangalore).
Asclepiadeæ	...Chlorocodon Wightii (Natal).
Convolvulaceæ	...Ipomæa Woodii (Natal).
	Jacquemontia capitata (Natal).
Solanaceæ	.. Solanum auriculatum (Natal).
	Habrathamnus elegans } Bangalore.
	Do. aurantiacus }
Scrophularineæ	...Budlea sp. (Bangalore).
Gesneraceæ	...Gesnera sp. (Bangalore).
	Cyrtodera chantalensis (Bangalore).
Bignoniaceæ	...Bignonia grandiflora (Bangalore).
	Bignonia sp. (Bangalore).
Acanthaceæ	...Ruttya ovata (Natal).
	Sanchezia nobilis variegata (Bangalore).
Labiatæ	...Ocimum gratissimum (Natal).
Aristolochiaceæ	...Aristolochia Bonplandii (Bangalore).
Euphorbiaceæ	...Croton tiglium (Jamaica).
Urticaceæ	...Ficus Mysorensis (Mysore).
Orchideæ	...Cymbidium pendulum (Salem).
	Orchis sp. } Mysore.
	Bulbophyllum sp. }
	Aerides sp. }

Orchideæ	...Vanda sp.	Mysore.
	Dendrobium Pierardi.	
	Dendrobium sp.	
	Cælogyne sp.	
	Ground Orchid.	
	Dendrobium sp.	from Burmah.
	Do. do.	
Scitamineæ	...Maranta discolor?	Bangalore.
	Maranta tubispatha.	
	Heliconia metallica.	
	Musa ensente (Congo).	
Irideæ	...Lapeyrousea cruenta (Natal).	
Amaryllideæ	...Agave sp. No I (Assam).	
	Agave rigida (Bangalore).	
	Furcrœa gigantea variegata (Bangalore).	
Liliaceæ	...Cordyline Australis (Sydney).	
	Asparagus myriocladus (Natal).	
	Agapanthus umbellatus (Natal).	
	Aloe Bainsii (Natal).	
	Dracæna Hookeriana (Natal).	
	Smilax asparagoides (Bangalore).	
	Asparagus verticillatus (Paris).	
Aroideæ	...Alocasia metallica.	
	Alocasia Marshalli.	
	Philodendron Carderii (Bangalore).	
Gramineæ	...Arundinaria Hookeriana (Simla).	
Filicie	...Osmunda regalis.	
	...Adiantum hispidulum.	
	...Adiantum sp.	
	...Davalia sp.	
	...Alsophylla sp. (Mysore).	
	...Adiantum venustum.	
	. Adiantum Moorei.	
	...Adiantum Grandiceps.	
	...Davalia platyphylla.	
	.. Davalia tenuifolia.	
	...Pteris tremula.	
	...Pteris geranifolia.	
	...Pteris quadriaurita var. argyrea.	
	...Pteris serrulata cristata.	
	...Pteris 2 sp.	
	...Gymnograma ocheracea.	
	...Cyrtomum caryotidium.	
	...Lastrea sp.	
	...Polypodium Powelli (Bangalore).	

Nursery Stock.—The Nurseries are well filled with a fairly representative stock of Horticultural and Economic plants. In addition we have a number of stock raised from seeds received from out-stations and Botanic Gardens. The new rule of allowing members a reduction of 50 % has been made more use of by local than by up-country members.

The Nursery, as will be seen from the tabular statement below, is well able to meet the demands of up-country members. It is hoped that with the issuing of the new plant list greater advantage will be taken by those in the Mofussil of the privileges offered by the Society.

List.	*In pots.*	*In pans and seed beds.*
Climbers	1,250	300
Avenue and fuel trees	2,700	1,200
Flowering shrubs	4,700	4,000
Foliage plants ..	2,500	400
Crotons	700	...
Conservatory plants	1,500	...
Economic plants including Pará and Castilloa	4,650	500
Ferns	1,800	...
Cannas	350	...
Palms	2,571	2,000
Total ...	22,721	8,400

PLANTS, SEEDS AND BULBS SOLD AND DISTRIBUTED.

Although the season has been an adverse one, the quantity of stock sold and distributed during the year has not been much below that of last year.

A large number of Camphor plants were raised from imported Japanese seed and were keenly sought after by Planters.

Rubber came in for special notice also, but, owing to the failure of the rains, a large number have been left on our hands. These, however, will no doubt be quickly bought up at the commencement of the monsoon in June 1905.

The following is a list of seeds and plants distributed to members and to Botanic and other Public Gardens and sold :—

NAME.	Members.	Botanic Gardens.	Sold.	TOTAL.
Bulbs	228	42	32	302
Caladiums	51	..	..	51
Casuarina seeds	2 lbs. 2 ozs.	..	1 lb. 3 ozs.	3 lbs. 5 ozs.
Do. plants	..	..	4,237	4,237
Climbers	316	34	242	592
Crotons	490	58	338	886
Economic plants	245	52	2,556	2,853
Ferns	377	13	166	556

NAME.	Members.	Botanic Gardens.	Sold.	TOTAL.
Flower seeds, Packets ..	579	3	2,279	2,861
Do. Tins	73	..	1	74
Guinea grass roots	..	..	350	350
Guinea grass seeds	..	..	8 ozs.	8 ozs.
Hurrialee grass seeds ..	12 ozs.	..	10 lbs. 4 ozs.	11 lbs.
Inga dulcis seeds	2 lbs.	..	1,690 lbs.	1,692 lbs.
Indigenous seed packets ..	120	68	33	221
Lucerne seeds	5 lbs. 12 ozs.	..	67 lbs.	72 lbs. 12 ozs.
Mango grafts, Madras kinds ..	..	5	152	157
Do. Imported ..	..	10	92	102
Miscellaneous plants ..	4,082	940	3,563	8,585
Palms	340	..	412	752
Potatoes..	..	..	2 Maunds.	2 Maunds.
Pineapples	24	..	..	24
Paspalum dilatatum seeds ..	4 ozs.	..	5 lbs. 8 ozs.	5 lbs. 12 ozs.
Do. roots ..	2	31	250	283
Rubber seeds { Pará ..	..	..	7,000	7,000
Rubber seeds { Ceara ..	..	..	42,500	42,500
Rose plants	32	..	93	125
Vegetable seeds, Packets ..	296	57	173½	526½
Do. Tins ..	3	..	2	5
Do. Weight ..	165 lbs. 5 ozs.	..	79 lbs. 10¾ ozs.	244 lbs. 15¾ ozs.

GARDEN NOTES.

Coco-De-Mer, or Double Cocoanut.—*Lodoicea Seychellarum* —Reference was made to this remarkable cocoanut in the Proceedings of the 3rd Quarter for 1904. At that time one seed had shown signs of germination. This seed has since been planted on a mound at the eastern end of the Vizianagaram tank. The hypocotyl continues to make a healthy growth and, at the time of writing, is about 18 inches long, but at present there are no signs of either radicle or plumule being developed.

Crotons.—There is perhaps no other class of plants which affords such an interesting study to Madras amateur gardeners as the croton. The great variation in their colour, formation of leaves and habit of growth provides us with endless varieties. Unfortunately this class of plants does not receive the attention it so well merits. The climate of Madras appears to suit the growth of crotons in every way.

The Society, recognising the neglect into which this class of plants has fallen, is trying to revive the interest which used to be taken in it in days gone by and is getting together as complete a collection as possible, which is being correctly

named. Subsequently catalogues will be issued which will, it is hoped, be appreciated by the amateur gardeners of Madras.

Rubber Plants.—This class of plants has received more than usual attention this year. The *Landolphia Florida* growing in the Nursery Gardens bore a good crop of fruit, and in consequence over one hundred plants were raised, part of which have been distributed. The remainder are in the Nursery.

A large number of plants of *Landolphia Kirkii* were also raised from seeds. The demand for this variety, however, is almost *nil*, in spite of the fact that though the plant is of more slender growth the latex is equal if not superior to that of *Landolphia Florida*. The *Funtumia elastica* seeds received early in the year were successfully germinated. A few were distributed; those retained in the Gardens unfortunately perished during the hot weather. This species appears to be very delicate. It flourishes at Peradeniya, but is subject to the attacks of an insect which denudes it of foliage, and which must of necessity be detrimental to the tree's health. A large number of young plants have been raised from Pará and Castilloa seed. The former will no doubt grow well on the West Coast of this Presidency. It might also flourish in the Palghat Valley which runs through the Western Ghauts and, being exposed to the east and west, receives a heavy and plentiful supply of rain.

The latter will grow in a situation with less rainfall, and at a higher elevation.

Agave Plantation.—In the Society's Proceedings for March 1900, it was first suggested that the piece of waste land behind the Nursery should be cleared of its jungle growth, and that it should be utilised for some profitable cultivation. Sisal hemp was proposed as, at the time, it was being spoken of as a new industry which would in the near future be taken up by planters and others. Permission was obtained to clear the ground and in November 1901, two acres approximately were put under Sisal hemp, one year being the average age of the plants. In 1903, it was suggested that a trial be made with Russian sunflower, and to make room for this cultivation half the Sisal hemp plants were lifted and disposed of to a Fibre Company in Assam. The remaining plants, about 500 in all, were left, and it is pleasing to report that towards the end of 1904 a private offer was made for the whole stock which has been valued at Rs. 5,000. Negotiations are now in progress for their sale.

The plants have made variable growths, those on the higher and drier ground being in perfect health and vigour, whilst those in that portion of the plot which has a slight tendency to

dip and, therefore, retains water, are dwarf and have not the healthy bloom on their leaves which is noticeable on the more vigorous plants.

Orchids.—This section of plant culture continues to receive especial attention. Several additions have been made to the collection from Mysore, Salem and Burma. A very fine specimen of the West Indian Orchid, *Oncidium luridum*, flowered in the early part of the year and was much admired. Others which flowered during the year are:—*Dendrobium Pierardi*, *D. Cruentum*, *D Jerdonianum*, *D. Chrysotoxum*, *D. Aggregatum*, *D. Album*, *D. Ramosissimum*, and three other *Dendrobiums* species not known. *Vanda Roxburghii* and *V. Wightii*, *Cymbidium aloifolium*, *C. pendulum* and *C. erectum*; *Ærides Lindleyana*, *A. rosea*, and *A. crispum*: and *Saccalobium giganteum* *Vanilla planifolia*, *Pogonia plicata*, *Phajus Wallichii*, *Bletia hyacinthina*, *Habenaria viridiflora* and *Limatodes rosea*.

Climbers.—This section of plants has received a fair share of attention during the year. As complete a collection as possible has been got together and planted in tubs (old tar barrels) and the old style of bamboo trellis has been discarded for a wire trellis, which has proved to be most satisfactory and more economical. The plants have all been clearly named, and form an interesting collection There are in all 81 kinds, and more are being added as opportunity occurs.

Alterations and Improvements.—The Ornamental Gardens call for few remarks The alterations to the Dutch garden were fully described in the Proceedings for the 3rd Quarter of this year; the only other alteration was the removal of a piece of unsightly shrubbery behind the Bauhinia arcade and the opening out thereby of a pretty vista to the Palmetum.

In the Nursery Gardens, the first thing to be noted is the improvement to the Superintendent's Bungalow, the whole of which has been thoroughly overhauled. The old country tiles have been replaced by Mangalore tiles, which have much improved the appearance of the building.

A new Potting Shed and Godowns, which were very badly needed, have been erected. These were commenced in October and were completed by the end of December. They consist of a large open verandah, 30 feet by 20 feet and 18 feet high, with a room at either end 20 feet by 18 feet. As soon as funds permit it is intended to continue this line of buildings by adding rooms at the eastern end and western ends, for a carpenter's shop and store house respectively.

Committee Members.—During the year under review, Mr. G. W. Dance, I.C.S., resigned the Committee, and was succeeded by Major R. M. Bell, I.A., who in turn resigned and was succeeded by the Hon'ble Mr. Justice R. S. Benson, I.C.S.

The Reverend Dr. Archdeacon A. A. Williams also resigned, and the vacancy was filled by Mr. R. Greenall.

Mr. L. E. Kirwan and Mr. R T. Menzies continued to hold the offices of Honorary Secretary and Honorary Treasurer, respectively. The Hon'ble Mr. Castlestuart Stuart was the *ex-officio* member for the whole year.

Resignations.—Eight members resigned during the year, due to their leaving the country for good or being removed to Stations in other parts of India. There was one death, and six members were placed on the absentee list.

Subscribing Members.—There has been a large increase in the membership of the Society during the current year; the number of those joining has exceeded all previous years since 1890, when a special request was made by His Excellency Lord Connemara who, as President of the Society, took especial interest in its work. The accessions in that year were due probably to the inauguration of B Class which previously did not exist. The large influx of members unfortunately did not then continue.

The total number of members on the roll on the 31st December was 163, *viz.*, 133 A Class, 47 B Class, 3 Honorary members, 9 Extraordinary members and 1 Life member.

Resolution.—The following Resolutions were passed :—

Mr. Natesa Aiyer's letter with reference to the privileges of B Class members was read, and it was resolved that it should be left over for discussion at the next Committee Meeting.

Committee.—That the following gentlemen be asked to act on the Committee during the ensuing year :—

The Hon'ble Mr. Justice H. T. Boddam, *Chairman.*
The Hon'ble Mr. H. Bradley, I.C.S.
The Hon'ble Mr. H. A. Sim, I.C.S.
The Hon'ble Mr. Justice R. S Benson, I.C.S.
Dewan Bahadur N. Subrahmanyam, *Honorary Treasurer.*
Col. P. H. Benson, *Honorary Secretary.*
C. A. Barber, Esq., F.L.S.
J. G. Smith, Esq.
A. L. Hannay, Esq., I.C.S.
G. Narayanasawmy Chetty, Esq.
H. E. Houghton, Esq
P. F. Fyson, Esq . F.L.S.
V. G. Lynn, Esq.

The Hon'ble Mr. Castlestuart Stuart, *ex-officio* member for Government.

Mr. Chas. Sowden proposed and Mr. L. E. Kirwan seconded a vote of thanks to the Chairman which was carried.

Col. Benson proposed and Mr. Narayanasawmy Chetty seconded a hearty vote of thanks to Mr. Kirwan and Mr. Menzies for their valuable work during the year as Honorary Secretary and Treasurer respectively.

Members of the Society on the 31st December, 1904.

President.

His Excellency The Right Hon'ble Lord Ampthill, G.C.I.E.

Honorary Members.

L. A. Bernays, Esq. | General J. P. Ferrier.

Sir J. D. Hooker, C.B., etc.

Extraordinary Members.

Bidie, Surgeon-Genl. G., C.I.E.
Cox, Colonel H. W. H.
Duff, Sir M. E. Grant, G.C.S.I.
Lawson, Sir Charles A.
Steavenson, Joseph, Esq., B.A.
Whiteside. W. S., Esq.
West, Henry C., Esq.
Moore, Col. the Hon'ble Sir George.
Walker, J. L. Esq.

Life Member.

Houghton, H. E, Esq., F.R.H.S., F.R.B.S.

Subscribing Members—(A Class.)

Ampthill, Lord, His Excellency The Right Hon'ble, G.C.I.E.
Adam, John, Esq.
Anderson, Captain R. H. B., I.A.
Atkinson, the Hon'ble Mr. J. N., I.C.S.
Bannerji, A. R., Esq., I.C.S.
Bannerman, Lieut.-Col. W. B., I.M.S.
Barber, C. A., Esq., M.A., F.L.S.
Bell, Major R. M., I.A.
Benson, the Hon'ble Mr. Justice R. S., I.C.S.
Benson, Col. P. H., I.M.S.
Bobbili, H. H. the Maharajah, *Kt.*, C.I.E.
Boddam, the Hon'ble Mr. Justice H. T.
Bourne, the Hon'ble Dr. A. G., F.R.S.
Bradley, the Hon'ble Mr. H., I.C.S.
Breeden, Rev. J.
Buckley, L. E., Esq., I.C.S.
Cayley, B., Esq.
Chatterton, Alfred. Mrs.
Clark, Fred. Scott, Esq.
Clover, Lieut. Austin L., R.F.A.
Conran, Dr. C. E.
Cowdy, Rev. S. J.
Cowie, D. W. G., Esq., I.C.S.
Dance, G., Mrs.
Deane, C. S., Mrs.
Desikacharry, the Hon'ble Mr. V. C.
Formby, Lieut.-Col. R. F. R., I.A.
Gaitskell, M. F., Mrs.
Greenall, R., Esq.
Hakim, Lieut-Col. H. M., I.M.S.
Hammick, the Hon'ble Mr. M., C.I.E., I.C.S.
Hannay, A. L., Esq., I.C.S.
Hardaker, R. G., Esq.
Hatchell, D. G., Esq.
Henderson, A. E., Miss
Hubbard, J. A., Esq.
Jackson, G. H. B., Esq., I.C.S.
Jones, R. Ll., Esq., F.R.A.S.
Josselyn, J., Esq.
Jugga Row Garu, Rajah.
Keess, W., Esq.
Kumara Rajah of Devarakottah.
Kurupam, Rajah of.
Lynn, V. G., Esq.

Malcolm, Bernard, Esq.
Marshall, D., Esq.
Menzies, R. T., Esq.
Miller, A. P., Esq.
Mudukrishna Yachendra Bahadur.
Nair, T. M., Dr.
Napier, A. S., Esq.
Narayanasawmy Chettiar, G., Esq.
Nelson, Horace A., Esq.
Newman, Captain C. R., R.F.A.
Norton, Eardley J., Esq.
Oakes, A. W. D., Esq.
Oakes, W. H., Esq.
Ormerod, H., Esq.
Orr, Sutherland, Esq.
Palmer, E. B., Esq.
Parlakimidi, Rajah of.
Pinhey, A. F., Esq., I.C.S.
Pollard, Rev. C.
Punganur, Rajah of.
Ramanujam Chettiar, C., Esq.
Roebuck, E. H., Esq.
Rosling, A. W., Esq.
Romilly, George, Esq.
Ross, C. E., Esq.
Sabapathy Iyah, C., Esq.
Scott, E., Esq., I.C.S.
Sealy, Allin A., Esq.
Sewell, F. W., Esq.
Sim, The Hon'ble Mr. H. A., C.I.E., I.C.S.
Smith, C. Michie, Esq.
Smith, J. G., Esq.
Smith, P. Bosworth, Esq.
Smith, W. D., Esq.
Sowden, Chas., Esq.
Sree Maharani Lady Gajapathy Row Garu, H. H.
Srinivasa Ragava Iyer, L., Esq.
Straker, C. H., Esq.
Subba Naidu, A., Esq.
Subrahmanyam, N., Dewan Bahadur.
Stuart, The Hon'ble Mr. A. E. Castlestuart, I.C.S.
Thomson, H. J., Esq.
Thurston, Edgar, Dr.
Travancore, H. H. the Maharajah of, G.C.M.G.
Turner, W. A., Esq.
Twigg, J., Mrs.
Venkatachellam, M., Esq.
Venkataramdoss Naidu, S., Esq.
Vincent, J. R., Esq.
Wallis, the Hon'ble Mr. J. E. P.
Weir, theHon'ble Mr. C. J., I.C.S.
White, the Hon'ble Chief Justice Sir Charles Arnold, *Kt.*
Whitehead, Right Reverend the Lord Bishop of Madras.
Williams, the Rev. Dr., Bishop of Tinnevelly.
Yates, J. A., Esq.
Yorke, A. J., Esq.
Zemindar of Kuyyaruram.
Do. Oottakuli.
Do. Polavaram.

(B Class Members.)

Ager, B., Esq.
Avadia Pillay, B. C., Esq.
Chambers, G. A., Esq.
Coleridge, F. A., Esq.
Desika Charriar, T., Esq.
Dady, E., Esq.
Davy, H. F., Esq.
Giffard, Major G. G., I.M.S.
Godwin, Fenn, Mrs.
Hoare, W. E., Esq.
Jones, Mrs. J. Crossly
Josselyn, J., Esq.
Junghenn, J., Esq.
Kirwan, L. E., Esq.
Lakshmi Varahu Iyer, C. R., Esq.
Lawson, A. E., Esq.
Large, J. C., Esq.
Latchmana Rama Iyer, P. R., Esq.
Macrae, A. W., Esq.
MacGregor, H., Miss
Maitland, Lieut.-Col. J., I.M.S.,
Manavedan Rajah, K. C., Esq.
Murugasa Mudaliar, C., Esq.
Mildred, C., Esq.
Nallasawmi Pillay, J. M., Esq.
Natesa Iyer, S., Esq.
Paul, William A., Esq.
Philips, M., Mrs.
Potts, Rev. R. U.
Raja Iyer, A. K., Esq.
Ramanujam Chettiar, Tota R. V., Esq.
Rama Row, M., Esq.

Savarimuthoo Pillai, T. P. J., Esq.
Sheriff Khan Bahadur Mahomed.
Sivasawmi Iyer, the Hon'ble Mr. P. S.
Srinivasa Pillai, K. S., Esq.
Sturmer, Lieut.-Col. A. J., I.M.S.
St. Leger, W. D., Esq.
Subba Row, M. K., Esq.
Subrahmanyam Iyer, A., Esq.
Sundrasa Row, M., Esq., Scindia Saheb.
Thomson, the Hon'ble Sir J., *Kt.* C.S.I., I.C.S.
VanGeyzel, Lieut.-Col. J. L., I.M.S.
Vaughan, R. J., Esq.
Venkatasama Row, M. S., Esq
Williams, F., Miss

P. H. BENSON, Col. I.M.S.,
Honorary Secretary.

The Proceedings of the Agri-Horticultural Society of Madras for the 1st Quarter ending the 31st March, 1905.

COMMITTEE MEETING.

At a Committee Meeting held in the Society's Library on Monday, the 9th January, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
Chas. Sowden, Esq.
H. E Houghton, Esq.
G. Narayanasawmy Chetty, Esq.
J. G. Smith, Esq.
L. E. Kirwan, Esq., *Honorary Secretary*.

Read letter from the Board of Revenue (Agricultural Department) offering the Society an Air-motor which is at present at Bellary.

Read also letter from Mr. L. E. Kirwan, offering to purchase the Society's present and future stock of Sisal hemp plants.

Resolutions.—1. That the question of an Air-motor be held over until the return of Mr. Chatterton, and that his advice be asked on the subject.

2. That Mr. Kirwan's letter be circulated to all the members of the Committee.

3. That the Annual Floral Exhibition be held on the 25th February, 1905.

4. That with reference to Mr. Narayanasawmy Chetty's offer of a silver medal for the best grown flowering shrub or plant at the Show, Messrs. C. A. Barber and L. E. Kirwan be appointed special judges

5. That the Hon'ble Mr. Bradley and Messrs. C. Sowden and L. E. Kirwan be asked to act as a Sub-Committee to go into the water-supply question to the Nursery Garden.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during January :—

Report on the Management of the District Gardens in the Central Provinces for the year 1903-04.

Records of the Geological Survey of India, Vol. XXXII, Part I, 1905.

Agricultural Bulletin of the Straits and Federated Malay States. Vol. III, No. 10, by H. N. Ridley, M.A., F.L.S.

University of California Publications:—Bulletin No. 157.—Commercial Fertilizers, by Geo. Roberts. Circular No. 10 Reading Course in Economic Entomology.

Verslag omtreut dew staat van 'Slands Plantentum to Buikenzorg over het jaar 1903.

Agricultural News, Vol. III, No. 67, 68, and Bulletin No. 32 seedling and other canes at Barbados, 1904, issued by the Commissioner of Agriculture for the West Indies.

The *Tropical Agriculturist*, Vol. XXIV, No. 7, edited by Messrs. A. M. & T. Ferguson.

The *Queensland Agricultural Journal*, Vol. XV, Part I.

Curtis's Botanical Magazine, New Series, Vol. 1, No. 1, or 1415.

Edited by Sir William T. Thistleton-Dyer, K.C.M.G., etc.

The *Gardener's Chronicle*, Vol. XXXVI, Nos. 934, 935, 936, 937 and 938.

Exchange seed list from:—Grossh, Botanischeu G. Gartens Karlsruhe, I. B. Des Botanischu Gartens Gartens der Universtat Zurich; Cautabrigiensis Academiæ; Herzoglichen Botanischen Gartens zu Braunschweig Musei Parisiensis.

Bulletin of Miscellaneou sinformation issued by the Director, Royal Botanic Gardens, Kew.

Catalogues received from:—Messrs. Vilmorin-Andrieux & Co., Paris, France; Wholesale Trade list of Southwick Nurseries Mass, U.S.A; Barr's Seed Guide, 1905, Covent Garden, London; J. C. Schmidt & Sons, Erfurt. Germany; Damman & Co., Saw Giovauni a Seduccio, W. Naples; Australian timber tree seeds, by Andrew Murphey; Grandview Woy Woy, N.S.W., Australia.

Plants and seeds received.—The following plants and seeds were presented to the Gardens during the month of January:—

From the Superintendent, Guindy Park.

A Basket of seeds of Cycas circinalis.

From the Hon'ble Mr. Castlestuart Stuart, Adyar.

1 Packet of seed of Jacaranda sp. *from South America.*

From C. A. Mowbray, Esq., Madras Club.

22 Plants of Raffia Ruffia (from Madagascar).

From Col. C. W. Godfrey, Napier Hotel, Poona.

1 Plant of Phaseolus calcarella.

1 Plant of Passiflora Bonapartii.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society:—

A Class.—Major R. H. Elliot, I.M.S.

B Class.—P. Ethirajulu Naidu, Esq. and W. H. Todd, Esq.

SUPERINTENDENT'S NOTES.

Cotton cultivation.—The improved cultivation of Cotton is occupying the attention of numerous cultivators now, and hardly a week passes without several letters being received from correspondents asking for seeds of the better varieties, more especially the Tree Cottons. To meet the demands, application has been made by letters to Botanic and other Gardens in Northern India, Australia and the West Indies. On making an application to the Principal of the Pusa College of Agriculture, we were referred to Messrs. Shaw Wallace & Co., Calcutta. They replied as follows :—

Tree Cotton Seed.—We are in receipt of your letter of 20th instant and in reply thereto beg to say that we shall be pleased to supply you with Tree Cotton seed. The trees are, now only in flower, and will not bear until next month. We have, however, recorded your name and propose sending you small quantities of the two chief varieties with which we are experimenting namely the "clustered seed" or "kidney cotton," and the "naked seed." We attach hereto a short memo. with reference to selection of soil and preparation of land.

Selection of land.—The soil best suited is a light rich loam, *i.e.*, it must be porous so that (1) water may easily drain off, (2) the roots freely circulate.

Another essential is that the land must be high and not subject to inundation as cotton plants, particularly when young, are quickly killed off if the ground is under water.

If land with a natural drainage can be procured, so much the better. Clayey soils which form a hard seed-bed are not, recommended.

Preparation.—Deep ploughing and harrowing should be done at once, all clods broken up and the ground thoroughly cleaned and pulverised; all jungle and shrubs rooted out and burned.

In a month or six weeks further turning over the soil should be done and the land left unharrowed so as to air the soil ; this will greatly assist to kill off insects and weeds, and facilitate the final preparation prior to sowing.

Manuring will not be necessary for the first year.

COMMITTEE MEETING.

At a Committee Meeting held on the 6th February, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam, *Chairman.*
The Hon'ble Mr. H. Bradley, I.C.S.
C. A. Barber, Esq.
H. E. Houghton, Esq.
G. Narayanasawmy Chetty, Esq.
L. E. Kirwan, Esq., *Honorary Secretary.*

Resolutions.—The following Resolutions were passed :—

1. That the Honorary Secretary be requested to make the best arrangement possible for the Show, and that if tents are not available, that a pandal be erected instead.

2. That the estimate for a *Still* be deferred until a more convenient season.

3. That with reference to the report of the Sub-Committee regarding the water-supply, arrangements be made to continue as at present, and the relaying of a 3" main be deferred.

4. That with reference to Mr. Kirwan's letter offering to purchase the Society's stock of Sisal bulbils, etc., he be asked to draw up an agreement for signature.

Government Grant.—Read letter from the Madras Government, Financial Department, dated 17th January, 1905, sanctioning Rs. 500 from the Budget for 1904-05, for extra prizes to be awarded at the Annual Flower Show, 1905.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during February :—

Government of Madras Revenue Department, G.O. No. 12, 6th January, 1905, Crystal Palace, Colonial and Indian Exhibition, 1905.

G.O. Nos. 29 and 29*a*, 12th January, 1905, Forest Administration Report, 1903-04.

G.O. No. 30, 12th January, 1905, Pepper Vine Disease.

Agricultural News, Vol. III, Nos. 69 and 70 and West Indian Bulletin Conference Number, issued by the Commissioner of the Imperial Department of Agriculture for the West Indies.

The *Gardener's Chronicle*, Vol. XXXVI, No. 939, Vol. XXXVII, Nos. 940, 941 and 942. Purchased.

Bulletin of Miscellaneous information. Appendix IV, 1904, issued by the Director, Royal Botanic Gardens, Kew.

Curtis's Botanical Magazine, New Series, Vol. I, No. 2 or 1416, edited by Sir William T. Thistleton-Dyer, K.C.M.G., etc.

Agricultural Bulletin, Vol. III, No. 12 of the Straits and Federated Malay States, edited by H. N. Ridley, Esq., M.A., F.L.S.

Bulletin of the Department of Agriculture, Vol. III, Part I, edited by William Fawcett, Esq., B.Sc., F.L.S., Jamaica.

The *Tropical Agriculturist* and *Magazine of the Ceylon Agricultural Society*. (New Series) Vol. XXIV, No. 2, edited by J. C. Willis, Esq., Sc.D.

Exchange seed list from :—Imperial Botanic Gardens, Berlin, Botanic Gardens, Krakowie.

Circulars and Agricultural Journal of the Royal Botanic Gardens Ceylon.

Vol. II, No. 27. Plant Breeding, Part 3. Peas.
„ „ No. 28. Branch Canker in Tea.
„ „ No. 29. Canker (Nectria) of Para-rubber (*Hevea Brasiliensis.*)

Plants issued.—The following plants and seeds were issued during the month of February :—

To Geo. Oakes, Esq., Ootacamund.
8 Plants Miscellaneous.
1 Packet of Seeds of Coffee Zanzibaria.

To Messrs. Moonesawmy & Sons, Bangalore.
21 Plants, a miscellaneous collection.

Plants and seeds received.—The following seeds were presented to the Gardens during the month of February :—

From J. C. Willis, Esq., Director, Royal Botanic Gardens, Ceylon.

1 Packet of seeds of Oncospermum filamentosum.
1 „ „ „ fasciculatum.
1 „ „ Corypha umbraculifera.
1 „ „ Licuala peltata.
1 „ „ Fillicium decipiens.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

Class A.—D. L. Narayan Rao, Esq., the Very Rev. Lopes, K. Janakiram Pantulu, Esq., P. B. Arbuthnot, Esq., and Archibald Read, Esq.

Class B.—P. F. Fyson, Esq., M.A., F.L.S., the Rev. E. M Macphail, and S. Golden, Esq.

Introduction of Nitrogen Bacteria.

In November, 1904, the Honorary Secretary, wrote to Mr. B. T. Galloway, Chief of the Bureau of Plant Industry, U. S. Department of Agriculture, asking for a small portion of the above material, for experimental purposes, and offering in exchange plants or seeds available in this country.

In reply Mr. Galloway advised the despatch of the bacteria, and said, that he would be glad to receive the following in exchange :—*Seedless Mango* if available ; any species of *Garcinia* ; information as to the cultivation of Bamboo for export ; and the locality in which the cane exported from Calcutta grows ; and lastly he wished especially to procure seeds of the Bouquet grass, *Thysanolema agrostis*. Enquiries are been made with

reference to the first three subjects and every endeavour is being made to procure the plants and seeds asked for. The last named plant is available in quantity in these Gardens.

The bacteria referred to came to hand on the 13th February 1905. It consisted of two parcels, one labelled Red Clover and the second Common Pea. Owing to the approach of the hot weather, it was thought advisable to let the material for Common Pea remain over until the next cool season, that for Clover only being opened. Clover, however, not being a plant grown here, it was decided (although it was against the instructions in the United States departments circular) to experiment on the more common leguminous crops in Madras, *viz. lucerne, sun hemp, ground nut, common* and *Bengal gram*, and the *Lima bean*.

The packet was opened on the 17th February, in the presence of Mr. L. E. Kirwan, Mr P. F. Fyson and the Superintendent, when it was agreed that to ensure a larger range for the experiment, it would be advisable to divide the packets between several parties who were interested in the experiments.

The packets were accordingly divided and distributed as follows:—One-quarter to Col. W. G. King, I.M.S., Sanitary Commissioner and Bacteriologist for Madras, one-eighth to Dr. Lehmann, Analytical Chemist to the Government of Mysore, one-eighth to Capt. F. F. Elwes, I.M.S., Assistant to the Bacteriologist to the Government of Madras, Mr P. F. Fyson, Professor of Biology, Presidency College, and the fourth was retained for experimenting with in the Gardens. The following directions received with the bacteria and printed in full; fully explains how the material should be prepared and used:—

The bacteria are beneficial *only* in connection with legumes ("pod-forming" plants), and are not applicable to other farm or garden crops. Each culture is adopted to a *particular* legume crop, the name of which is stamped upon the package. Even with legumes, these bacteria are of no decided benefit except when the proper nodule-forming bacteria are lacking in the soil, but a crop of nodule-bearing legumes improves the soil for succeeding crops.

The bacteria are capable of making up for a deficiency of soil nitrogen, but where other elements, as potash and phosphoric acid, are lacking, inoculation will not do away with the necessity for fertilizers containing these substances. Mineral fertilizers should, however, never be applied so as to come in direct contact with inoculated seed.

This material is furnished you with the understanding that you will carefully follow directions in its use, and will report upon the enclosed card your success or failure.

The following directions were also received :—

Directions for using inoculating material.

(Method patented in order to guarantee the privilege of use by the public. Letters Patent No. 755,519 granted March 22, 1904.)

Put one gallon of clean water (preferably rain water) in a clean tub or bucket and add No. 1 of the inclosed package of salts. Stir occasionally until all his dissolved.

Carefully open package No. 2 and drop the inclosed cotton into the solution. Cover the tub with a paper to protect from dust, and set aside in a warm place for twenty-four hours. Do not heat the solution or you will kill the bacteria—it should never be warmer than blood heat.

After twenty-four hours add the contents of package No. 3. Within twenty hours more the solution will have a cloudy appearance and is ready for use.

To Inoculate Seed :

Take just enough of the solution to thoroughly moisten the seed. Stir thoroughly so that all the seeds are touched by the solution. Spread out the seeds in a shady place until they are perfectly dry, and plant just as you would untreated seed. If bad weather should prevent planting at once, the inoculated seed, if thoroughly dried, may be kept without deterioration for several weeks. The dry cultures as sent from the laboratory will keep for several months Do not prepare the liquid culture more than two or three days previous to the time when the seeds are to be treated, as the solution once made up must usually be used at the end of forty-eight hours.

To Inoculate Soil :

Take enough dry earth so that the solution will merely moisten it. Mix thoroughly, so that all the particles of soil are moistened. Thoroughly mix this earth with 4 or 5 times as much, say half a wagon load. Spread this inoculated soil thinly and evenly over the prepared ground exactly as if spreading fertilizer. The inoculated soil should be harrowed in immediately.

Either of the above methods may be used, as may be most convenient.

The directions for preparing the culture were carefully adhered to, and in due course seeds and soil were separately inoculated with the prepared culture. The following sowings were made on the 19th February :—

Seed pans of the previously mentioned seeds were sown, first with inoculated seed, second with inoculated soil, and third with plain soil and seeds. Sand was used in preference to garden soil, as it was thought the results would be more definable.

Beds also were prepared in the open ground in the Nursery Gardens, and the same set of sowings made, nothing can be deduced, till there is an examination of their root systems, after

they have had sufficient time to produce nitrogenous nodules thereon. With reference to the bacteria forwarded to Col. King and Dr. Lehmann, the following replies were received from these gentlemen :—

OFFICE OF SANITARY COMMISSIONER,
MADRAS, 16th February, 1905.

THE HONORARY SECRETARY,
Agri-Horticultural Society,
Teynampet.

SIR,—With reference to your letter of the 15th instant, I am very much obliged indeed for your kindly placing a portion of the packet at my disposal. I think the arrangement made by you as to division is excellent, as the quantity actually required for experiment by the Institute need not be very large. If it can be successfully cultivated it would be possible to produce unlimited amounts, but opinions differ on the subject and, in any case, it would seem to depend upon the special microbe employed. If success attends the Institute's efforts, it would of course mean that unlimited supplies could be *maintained*. I hope good luck will attend the experiment.

Yours faithfully,
W. G. KING.

OFFICE OF THE AGRICULTURAL CHEMIST,
GOVERNMENT OF MYSORE,
BANGALORE, February 28th, 1905.

MY DEAR KIRWAN,

Thank you for your letter of the 27th and the accompanying bacteria. I thought it was Pea Bacillus you were sending me. For the Clover Bacillus I have absolutely nothing at present I could use it on, with even the remotest hope of success. So if you know of any one who is in a position to try Red Clover I shall gladly return it to you. I am sorry to see the express directions in regard to the Bacterium being only useful for the particular plant for which it is intended so generally disregarded here in India.

Yours sincerely,
J. LEHMANN.

SUPERINTENDENT'S NOTES.

Plant Diseases.—Plants like animals have their natural diseases which attack the plant in various ways : 1st, attacks by bacteria on the inner tissues and cells of the plants ; 2nd, by fungi which has a higher form of life than Bacteria, and generally find a host for their growth on the bruised or damaged surface of roots, branches, leaves and fruit ; 3rd, by what are known as galls which appear as peculiar swollen growths on the leaves ; and 4th, by nematodes, a nodular swellings on the roots, caused

by small insects. Besides these, plants are subject to the attacks of insects and scale pests too numerous to mention, which attack the outer tissues of the plants.

The study of these various diseases and enemies common to the plants of Madras has not received very much attention. It is hoped, however, that with the generous offer of Mr. Barber to investigate any diseased plants that we may at any time send to him, some very valuable information will be got together for the benefit of members.

It has been noticed this year that crotons in several gardens in Madras have been subject to a peculiar growth. The growth of the leading stems, apparently, is checked and numerous side growths are given out, which give that particularly branch a clawed or clubbed appearance. Presuming this to be due to some fungoid growth, a specimen collected from Mr. Kirwan's garden was forwarded to Mr. Barber, with a request that he would examine it, and if possible suggest a remedy. The following reply was received from Mr. Barber in due course :

The specimens of Crotons (Codiæum) have been examined in my office for insect or fungus injury without success. The disease is, therefore, probably due to the conditions in which the plants are grown. I may note that similar cases are not uncommon where pot plants of Crotons are reared. Good examples have been found at Chepauk and in my garden at Teynampet. It is to be noted also that certain forms are more attacked than others. This may be due to an original diseased stock being used or because certain forms are more susceptible. I cannot help thinking that the recent dry weather has had something to do with it, but cannot at present make any further suggestions. I presume that in Mr. Kirwan's garden only "tops" are used for propagation? That has not always been the case with me and I thought at one time that the disease might be due to using old and worn out bits of stem. We used to take cuttings from old stems in Antigua very largely and I never noticed it there. I hope to ride over and see Mr. Kirwan's Crotons some day, and shall be glad of any light you may be able to throw on the matter. It would be especially interesting to see if the disease is transmissible.

Mr. Barber in a later letter wrote:—I have one Croton the worst of all, which after being re-potted is recovering in a remarkable manner from the "disease."

Tomato Black rot.—Macrosporium tomato, Cooke.

Specimens of diseased tomatoes were sent to the gardens by Mr. Lynn with the request that they might be investigated and advice given as to the treatment of the plant to check the disease. The specimen fruits were forwarded to Mr. Barber,

with a request that he would report what the disease was, Mr. Barber sent the following reply :—

The tomato disease appears to be caused by a well-known fungus called "*Macrosporium tomato*, Cooke". This is called "Black rot" in the Text-books.

I do not know the ingredients of "Evan's Aseptic Spray Powder" referred to by you.

The following treatments are recommended :—

1. Very thorough spraying with Bordeaux mixture or other copper compound.

2. Thorough spraying with "Potassium sulphide solution" at frequent intervals.

Bordeaux mixture. (Composition.)

Dissolve 1 pound of pulverized sulphate of copper in 2 galls. of water ; 1 pound of quick lime in 1½ gals. of water ; when the materials are thoroughly incorporated with the water, put the two mixtures into one vessel and thoroughly mix. The plants affected should be thoroughly sprayed. In the case of fruits, if the mixture is not washed off by rain, they should be syringed with clean water.

Evans' Aseptic Spray Powder referred to by Mr. Barber was a composition, samples of which had been forwarded to the Society for trial from Mr. R. E Evans, Technical Chemist, Stratford-on-Avon. This was recommended to Mr. Lynn for spraying his affected fruits, and he reports that since applying it, the disease had not been nearly so bad. On inspecting the plants, several fruits which had been treated with this composition were found to distinctly show signs of the diseased having been killed.

Mango scale.—*Ceroplastes*. This is a common disease met with in all parts of Madras. It is also to be found on the mango trees of Chittoor, South Arcot. The specimen affected leaves were collected by Mr. Kirwan, and forwarded to Mr. Barber, who reported as follows :—

The mango leaves sent are covered with scale insects which remind me of "*Ceroplastes*" found in the West Indies rather abundantly. These are very troublesome pests and the mango tree seems to be very subject to them. The ordinary kerosene emulsion sprayed on the leaves is the best remedy.

Kerosene emulsions may be prepared as follows :—

1. "*Cook's emulsion* :—Soft soap one quart, hot water two quarts, kerosene one pint. Add the kerosene to the soap and kneed

"this with the hand until the soap has absorbed all the kerosene. "Then add hot water. This should be bottled and when wanted for "use dilute with water to $\frac{1}{2}$ or $\frac{1}{3}$ strength." This proportion I consider too strong for an amateur to use and I should recommend it being more diluted, also to insure its being well and thoroughly mixed, pump the liquid from one vessel to another several times.

COMMITTEE MEETING.

At a Committee Meeting held in the Society's Library on Monday, the 6th March, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam, *Chairman.*
The Hon'ble Mr. H. Bradley, I.C.S.
J. G. Smith, Esq.
R. T. Menzies, Esq., *Honorary Treasurer.*
H. E. Houghton, Esq.
G. Narayanasawmy Chetty, Esq.
The Hon'ble Mr. Justice R. S. Benson, I.C.S.
L. E. Kirwan, Esq., *Honorary Secretary.*

Resolutions.—The following Resolutions were passed :—

1. That the Air-motor question be deferred *sine die.*

2. That Friday, the 31st March, be fixed for the Annual General Meeting.

3. That Bronze medals be awarded to those exhibitors, whom the judges recommended for special prizes.

4. That the agreement between Mr. L. E. Kirwan and the Agri-Horticultural Society, *re* the purchase of 500,000 bulbils and suckers of the Agave rigida var. Sisalana, referred to at the Committee Meeting held on the 6th February, 1905, be confirmed on his paying to the Society a deposit of Rs. 100.

N.B.—The agreement referred to has been signed by all the members of the Committee, and has been handed over to Mr. Kirwan, and the required sum of Rs. 100 has been paid into the Society's funds.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during the month of March :—

The *Indian Forester*, Vol. XXXI, Nos. 2 and 3, edited by E. P. Stebbing, Esq.

U. S. Department of Agriculture, Experiment Station Record, Vol. XVI, Nos. 4 and 5, issued by A. C. True, Esq., Director.

The *Tropical Agriculturist and Magazine of the Ceylon Agricultural Society*, New Series, Vol XXIV, No. 9, edited by J. C. Willis, Esq., Sc.D.

Report on the working of the Department of Agriculture of the Central Provinces during the year ending 31st March, 1904.

Bulletin of Miscellaneous Information, Appendix 1 - 1905, issued by the Director of the Royal Botanic Gardens, Kew.

Government of Madras Revenue Department, G.O No. 102, 3rd February, 1905.—Agricultural Farms, and G.O. No. 95, 3rd February, 1905, Samalkota Experimental Farm.

Agricultural News, Vol. VI, Nos. 71 and 72, and the West Indian Bulletin, Vol. V, No. 3, issued by the Commissioner of Agriculture for the West Indies.

Curtis's Botanical Magazine. Fourth Series, Vol. I, No. 3, or No. 1417, edited by Sir William T. Thistleton-Dyer, K.C.M.G. etc.

The *Gardener's Chronicle*, Vol. XXXVII, Nos. 943, 944, 945 and 946. (Purchased.)

Exchange seed list were received from the following :—

Missouri Botanical Gardens, St. Louis, M. O.; Botanic Gardens, Berlin, Germany.

Annual Administration Report of the Forest Department of the Madras Presidency for the year ending 30th June, 1904.

Bulletin, Vol. II, No. 4 of the Imperial Institute, London.

Report on the working of the Department of Agriculture of the Central Provinces during the year ending 31st March, 1904.

Bulletin No. XX. of the Botanic Institute, Buitenzorg.

Proceedings and Journal of the Agri-Horticultural Society of India for April to December, 1904.

Plants and seeds issued.—The following plants and seeds were sent out during March :—

To each of the following gardens, one packet of seed of Dendrocalamus strictus.—To the Directors of the Botanic Gardens, Durban; Madagascar; Glasnevien, Dublin; Edinburgh; St. Petersburg; Cochin-China; Berlin; Zanzibar; Museum, Paris; and Java; also to the Curators of the Botanic Stations, Grenada, Antiqua, Trinidad, Gold Coast, British Honduras, and Trinity College, Dublin.

Plants and seeds received.—The following plants were presented to the Society during March :—

From Geo. Oakes, Esq., Ootacamund.

6 Plants of Anona Cherimoyir.
1 Packet of seed of Anona Cherimoyir.
1 Adiantum Legrande.
1 „ ludianianum.

1 Packet of seed of Blue Mountain Coffee.
1 ,, ,, Marigogipe Coffee.
1 ,, ,, West Indian Guava.
2 Fruits of the edible Passion Flower, *Passiflora edulis*.
1 Packet of seed of Atriplex Semibaccata.

From R. Greenall, Esq., Madras.
2 Plants of Dwarf pink Canna.

L. E. Kirwan, Esq., Honorary Secretary, Madras.
1 Packet of seed of Asparagus plumosus.
A large quantity of Dendrocalamus strictus.

New Members.—The following were proposed and elected ordinary members of the Society :—

A Class.—W. Aitcheson, Esq. and W. Mullaly, Esq.
B Class.—Mrs. E. L. Chandhuri and P. A. Costello, Esq.

COMMITTEE MEETING.

At a Committee Meeting held in the Society's Library on Friday, the 31st March, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*in the Chair*).
The Hon'ble Mr. H. Bradley, I.C.S.
R. T. Menzies, *Honorary Treasurer*.
J. G. Smith, Esq.
G. Narayanaswamy Chetty, Esq.
C. Sowden, Esq.
The Hon'ble Mr. C. J. Weir, I.C.S.
H. E. Houghton, Esq.
C. A. Barber, Esq.
L. E. Kirwan, *Honorary Secretary*.

Resolutions.—The following resolutions were passed :-

1. That a letter be sent to Mr. H. A. B. Vernon, I.C.S., Acting Commissioner to the Secretary of Salt, Abkari, and Separate Revenue, stating that the allegation made in the Society's Proceedings for the 4th Quarter, 1904, with regard to a case of Para-rubber seed consigned from Ceylon having been detained for over three weeks bythe Madras Customs Authorities was incorrect, and regretting the mistake.

2. That Mr. Cavanagh be granted 6 months leave on half pay in 1906, in lieu of 3 months on full pay in 1905, provided that he can arrange for a *locum tenens* to carry on his work during his absence.

3. That Mr. Cavanagh be allowed to go on tour in the Cochin and Travancore Districts, on the same lines as previously in Malabar.

4. That the prize schedule be left over for consideration at the next Committee Meeting.

5. That Mr. N. Krishnasawmi's letter be filed with other papers.

The Annual Flower Show.

The 66th Annual Flower Show was held on the 25th February in the Nursery Gardens. Though not up to the average of previous years, the display was a very good one considering how adverse the season has been from the Horticulturist's point of view. The arrangements differed in some respects from those of previous years. In place of the tents which usually are employed to cover in the walks, tatties were for the most part erected, the change being improved in every way, the increased height and space and the better light being most noticeable. One missed, among other things, the magnificent trophy of Ferns that Mr. Eardley Norton has been in the habit of sending, but the drought had affected this class of plants more than any other.

The two large groups of ferns and foliage plants sent by Messrs. Menzies and Subrahmanyam were distinctly above the average, and did much toward filling the main enclosure. Two remarkably good collections of Crotons were sent by Major Bell and Mr. Menzies and the Judges had some difficulty in awarding the first prize. Other good exhibits in this class, which was far and away the best in the Show, were Mr. Houghton's Caladiums—the finest collection, it may safely be said, that has ever been seen in Madras or anywhere in India. The same exhibitor's Palms filled the whole of one end of the main walk; while Messrs. Subrahmanyam and Kirwan sent Coleus, for which the prize went to the latter. Mr. Eardley Norton sent Dracænas and some fine specimens of Ferns; also a good collection of Anthuriums. Mr. Houghton also sent Panaxes. These exhibits were mostly above the average, but a little more competition between them would have been an advantage. Four good collections of annuals were conspicuous, with little to choose between them. The prize was awarded to Mr. Sivagnana Moodelliar. The portulaccas were excellent, specially those shown by His Excellency the Governor. Mrs Donovan deservedly won prizes for good displays of Zinnias and Balsams, while Mr. Subrahmanyam showed a very effective collection of new Lobelia. Only one collection of perennials was shown, and that a poor one, but the five exhibits of Pinks and Dianthus made up for any deficiencies in this respect; while the collections of Cannas and Mr. Oakes's Hibiscus were much better than those exhibited a year ago. The same may be said of the Verbenas for which H. E. the Governor won first prize. Only two lots of Begonias were sent in, one in each class. The Chrysanthemums also were poor, while no Roses were sent for competition at all. Mr. Subrahmanyam's Carnations, however, were distinctly good.

In the annual, perennial and foliage plant classes there were some noteworthy special exhibits. Mr. Houghton's new introductions of foliage plants of contained the following:—

Dracæna Jamesii
Aralia Japonica Variegata
Croton, Mrs. McLeod
Aralia Veitchii.
„ „ gracillima
Mimosa argentea
Anthurium andreanum
Geonoma schottiana
Thrinax Chuco
Carludovica Plumerii
Macrozamia Moorei
Curculigo recurvata
var. striata
„ recurvata
var. variegata
Maranta insignis

Among the novelties in the annual class, Mr. Houghton's new *Torenia* deservedly won the prize. Mr. Kirwan sent a striking specimen of *Amaryllis equestris* and some Mysore orchids in flower, which were awarded a special prize. Among the other exhibits a grass *Thysœlena rosea*, sent by Mr. Barber, attracted notice, as did the collections of geraniums, and helichrysum sent respectively, by Messrs. Kirwan and Bickham. Colonel Maitland sent three hybrid Hibiscus of which unfortunately only one was in flower. The cut flowers were good, but several exhibitors failed to adhere to the conditions. Mrs. Grant won the prize for table decoration, hers being the only exhibit. It is hard to account for the way in which Madras ladies neglect their opportunities in this direction.

The vegetables grown in Madras were good, taken all round, when one remembers what the season has been like; while the collections sent by Public Institutions such as the Coimbatore Jail, St. Patrick's Orphanage and the College of Agriculture deserve special mention. A word must be said for the fine specimens of the New York purple brinjal which was first exhibited by the Coimbatore Jail two years ago. It has evidently acclimatised itself, judging by the excellent exhibits of this vegetable from Bangalore. The vegetables from Bangalore were good, but in less profusion than usual. Among the fruits, which were up to the average, a seedless pomelo grown in Madras was noteworthy; and there were some remarkably fine apples.

The economic classes attracted far more attention this year than usual. The Coimbatore Jail has made a trial of the possibilities of the sunflower. The bottle of oil, the fine heads of flowers and the fibre extracted from this plant, which were exhibited, were not the least interesting features of this class. There was also a quantity of hand cleaned fibre extracted from agave and other plants, which shows that experiments are being made in several parts of the Presidency with a view to establishing this industry. Mr. J. D. B. Gribble, I.C.S., (Retired), won a prize for fibre extracted from *Fourcroya gigantea* by hand and by a Baraclough machine, driven by a $6\frac{1}{2}$ H. P. Otto oil engine, while a collection of fibres was also sent by the College at Saidapet; and another extracted by the Todd machine was exhibited by the Society, " not for competition." Mr. Barber sent a collection of sugarcanes from the Samalkot Experimental Farm, with the same reservation; and there were several other collections besides. Castor seeds, sorghums, cigar

wrappers and vegetable dyes were also shown, but the competition among these classes was not good; the collection of aromatic plants sent from Guindy Park, which gained a prize, also had no rival either.

The Silver and Bronze Medals for the best plants grown with ichthemic guano were won by Messrs. H. E. Houghton and L. E. Kirwan, with Caladiums and Coleus, respectively; while the Silver Medal for the best plant in the Show, kindly offered for competition by Mr. G. Narayanasawmy Chetty, was awarded by the Judges to Mr. R. T. Menzies for a handsome seedling Croton. They also specially commended two of Mr. Houghton's new Caladiums and a fine *Adiantum* in Mr. Norton's collection of ferns.

Messrs. Doraisawmy & Co. provided refreshments in a well-appointed tent, and H. E. the Governor's Band played a choice selection of music.

The following is a detailed list of the prize winners:—

CLASS I.—*Flowers in Pots, exclusive of Annuals.*

Judges:—1 to 5. Mr. W. A. Turner and Major G. G. Giffard, I.M.S. Nos. 6 to 12. The Hon'ble Mr. C. J. Weir and Mrs. A. G. Bourne.

2. General Collection of Perennials, not more than two pots of each variety. First prize, a Bronze Medal.—One Exhibit—Dewan Bahadur N. Subrahmanyam.

3. Verbenas, not more than two pots of each variety. First prize, a Bronze Medal.— H. E. the Governor.

Second prize, a Certificate.—Messrs. Spencer & Co.

4. Pinks and Dianthus, single and double varieties, not more than 50 pots. First prize a Bronze Medal.—Mr. A. Robertson.

Second prize, a Certificate.—Mr. H. A. Nelson.

5. Carnations, Picotees, not more than 50 pots. First prize, a Bronze Medal.—Dewan Bahadur N. Subrahmanyam.

7. Cannas, not more than 30 pots. First prize, a Bronze Medal.—Mr. Eardley J. Norton.

8. Collection of Begonias (Rex varieties), not to exceed 30 pots. First prize, a Bronze Medal.—Mr. A. Robertson.

9. Collection of Begonias (fibrous-rooted and flowering varieties), not to exceed 30 pots. First prize, a Bronze Medal.— Mr. C. E. Ross.

10. Chrysanthemums. First prize, a Bronze Medal.—H. E. the Governor.

Second prize, a Certificate.—Mr. C. Sowden.

12. Hibiscus. First prize, a Bronze Medal.—Mr. W. H. Oakes.

An extra prize given for any new flowers in this class not raised or exhibited in Madras before.—Mr. L. E. Kirwan's lily and orchids.

Judges' Remarks. Nos. 1 to 5.—Roses, no Exhibits. Perennials. Only one exhibit which was good. Verbenas, the winner's was a very good exhibit, the flowers being well out and the plants were well-

grown and many varieties. Pinks and Dianthus—a distinctly good class. Competitors should, however, abide by the rules of the Show and confine their exhibits to the number of pots stipulated. Carnations, a poor show, only one exhibit.

Nos. 6 to 12.—Competition not up to average, probably owing to the unfavourable season.

CLASS II.—*Annuals grown in Pots.*

Judges.—The Hon'ble Mr. Justice R. S. Benson and Mrs. G. Dance.

1. Collection of Annuals in pots, no duplicates. Prize Rs. 10 and a Certificate.—Mr. P. M. Sivagnana Moodelliar.

Second prize Rs. 5 and a Certificate.—Dewan Bahadur N. Subrahmanyam.

2. Double Balsams, 30 pots Rs. 5 and a Certificate.—Mrs. Donovan.

3. Portulaccas, 30 pots. Rs. 5 and a Certificate.—H. E. the Governor.

5. Phloxes, 30 pots, Rs. 5 and a Certificate.—Mr. C. Sowden.

6. Climbers, no duplicates. Rs. 5 and a Certificate.—Dewan Bahadur N. Subrahmanyam.

7. Petunias *a.* Single, Rs. 5 and a Certificate.—Mr. W. H. Oakes. *b.* Double. Rs. 5 and a Certificate.—Mr. C. Sowden.

8. Double Zinnias, 30 pots Rs. 5 and a Certificate.—Mrs. Donovan.

An extra prize given for any new flowers in this class not raised or exhibited in Madras before.—Dewan Bahadur N. Subrahmanyam's Lobelias.

Judges' Remarks.—Considering the unfavourable character of the season we think this class was unusually good, though the number of exhibits was small. The double balsams were very fine. In the phloxes there was good variety of colour and the plants were well-grown. In the single petunias there were some magnificent specimens, large and richly coloured. There were four good collections of annuals with a large variety of plants and for the most part well-grown. We wish to bring to the notice of the Committee some new *Torenia* exhibited by Mr. H. E. Houghton; a new and very ornamental South African grass exhibited by Mr. C. A. Barber; and a new Lobelia exhibited by Dewan Bahadur N. Subrahmanyam.

CLASS III.—*Cut Flowers.*

Judges.—Mrs. L. E. Kirwan, Mrs. G. G. Giffard and Col. P. H. Benson, I.M.S.

1. Best Bouquet, Rs. 5.—Cuneappan.

2. Best 6 Button-holes, Rs. 3.—Mrs. Percy Grant.

3. Hollyhocks, best arranged vase, Rs. 3.—Mr. Eardley J. Norton.

4. Dahlias, best 12 blooms, no duplicates, Rs. 3.—Mrs. Donovan.

5. Helianthus, best arranged vase, Rs. 3.—Mrs. C. H. Payne.

6. Chrysanthemums, not less than 18 varieties, Rs. 3.—Mr. W. A. Turner.

9. Best collection of cut flowers from shrubs grown in Madras. Rs. 5.—H. E. The Governor.

10. Basket of cut flowers, Rs. 5.—Mrs. R. S. Benson.

11. Table decoration, Rs. 5.—Mrs. Percy Grant.

Judges' Remarks.—Nil.

CLASS IV.—*Ferns and Foliage plants.*

Judges.—Nos. 1 to 6.—Mr. C. Sowden and the Hon'ble Mr. C. Castlestuart Stuart, I.C.S. 7 to 13—Mr. A. E. Lawson and the Hon'ble Mr. H. Bradley, I.C.S.

2. Collection of well-grown Ferns, not more than one pot of each species to be exhibited. First prize, a Silver Medal.—Mr. Eardley J. Norton.

3. Trophy of Foliage Plants. First prize, a Silver Medal.—Mr. R. T. Menzies.

Second prize, a Bronze Medal.—Dewan Bahadur N. Subrahmanyam.

4. Caladiums. First prize a Silver Medal. Mr. H. E. Houghton.

Second prize, a Bronze Medal.—Glen Houghton.

5. Alocasias. First prize, a Silver Medal.—Mr. R. T. Menzies.

6. Palms and Cycads. First prize, a Silver Medal.—Mr. H. E. Houghton.

7. Crotons. First prize, a Silver Medal.—Major R. M. Bell.

Second prize, a Bronze Medal.—Mr. R. T. Menzies.

8. Dracænas. First prize, a Silver Medal.—Mr. Eardley J. Norton.

9. Aralias and Panax. First prize, a Silver Medal.—Mr. H. E. Houghton.

11. Anthuriums. First prize, a Silver Medal.—Mr. Eardley J. Norton.

Second prize, a Bronze Medal.—Mr. H. E. Houghton.

12. Coleus, 40 pots. First prize, a Silver Medal.—Mr. L. E. Kirwan.

Second prize, a Bronze Medal.—Dewan Bahadur N. Subrahmanyam.

13. Silver Medal for the best collection of New Plants.—Mr. H. E. Houghton's palms and cycads.

Special Prizes awarded for the best plants in class 1, 2 or 4 grown with Ichthemic Guano.

Judges.—Mr. C. A. Barber, Mr. L. E. Kirwan and Mr. P. F. Fyson.

First prize, Silver Medal.—Caladiums. Mr. H. E. Houghton.

Second prize, Bronze Medal.—Coleus. Mr. L. E. Kirwan.

Judges' Remarks.—Nos. 1 to 6.—The competition was more limited than usual. The collection of well-grown ferns was unusually varied. The trophies of foliage plants were excellent, and the lot

to which the Silver Medal was awarded was admirably arranged, The caladiums which won the Silver Medal formed a collection of rare and beautiful plants. The alocasias had evidently suffered from the unfavourable character of the season. Similar remarks apply to the palms and cycads. An excellent collection under the circumstances.

Nos. 7 to 13.—The two collections of crotons are well above the average. Both collections of coleus contain more than 40 pots. On the whole the exhibits are better than might have been expected.

CLASS V.—*Vegetables (grown in Madras). Not open to Government and Public Institutions.*

Judges.—Mr. H. E. Houghton and Mr. G. Narayanasawmy Chetty.

1. Celery, best 6 sticks, Rs. 3.—Guindy Park.
2. Beetroot, best 12 roots, Rs. 3.—St. Patrick's Orphanage.
3. Turnips, best 12 roots, Rs. 3.—Mr. F. B. Lovery.
4. Carrots, best 12 roots, Rs. 3.—Mr. E. A. S. Nicholas.
5. Onions, best 12 roots, Rs. 3.—Mr. F. B. Lovery.
6. Cucumbers, best 6, Rs. 3.—Guindy Park.
7. Vegetable Marrows, best 6, Rs. 3.—St. Patrick's Orphanage.
8. Cabbages, best 6 heads, Rs. 3.—Mr. E. A. S. Nicholas.
9. Tomatoes, Red, best 12, Rs. 3.—Messrs. Spencer & Co.
10. Tomatoes, Yellow, best 12, Rs. 3.—Mr. J. J. Forster.
11. Asparagus, best bunch, Rs. 3.—Mr. E. A. S. Nicholas.
12. Peas, best 2 plates (shelled and unshelled). Rs. 3.—Messrs. Spencer & Co.
14. French Beans, best 2 plates. Rs. 3.—Mr. F. B. Lovery.
15. Kidney Bean, best 2 plates, Rs. 3.—Mr. F. B. Lovery.
16. Lettuces, best 6, Rs. 3.—Dewan Bahadur N. Subrahmanyam.
17. Knol-Khol, best 12, Rs. 3.—Mr. E. A. S. Nicholas.
18. Jerusalem Artichokes, best 12, Rs. 3.—Messrs. Spencer & Co.
19. Radishes, best collection. 1 bunch of each kind Rs. 3.—Mr. E. A. S. Nicholas.
21. Sweet Herbs grown in pots, Rs. 3.—Mr. H. M. Sivagnana Moodelliar.

Judges' Remarks.—Exhibits are exceedingly good for the season, the peas sent in by Messrs. Spencer & Co. being above the average.

CLASS VI.—*Vegetables (grown anywhere). Not open to Government and Public Institutions.*

Judges.—Mr. J. A. Yates and Mr. John Adam.

1. Celery, best 6 sticks, Rs. 3.—B. Krishnasawmy Naidu.
2. Knol-Khol, best 12 roots, Rs. 3.—N. Parthasarathy Naidu and Tholasee Naidu.
3. Beetroot, best 12 roots, Rs. 3.—Cunneappan.
4. Carrots, best 12 roots, Rs. 3.—B. Krishnasawmy Naidu.

5. Turnips, best 12 roots, Rs. 3. —N. Parthasarathy Naidu.

6. Onions, best 12 roots, Rs. 3.—N. Parthasarathy Naidu.

7. Cabbages, best 6, Rs. 3.—B. Krishnasawmy Naidu.

8. Vegetable Marrows, best 6, Rs. 3.—B. Krishnasawmy Naidu.

9. Cucumbers, best 6, Rs. 3.—Madurai Ammall.

10. French Beans, best 2 plates, Rs. 3.—N. Parthasarathy Naidu.

11. Kindney Beans, best 2 plates, Rs. 3.—N. Parthasarathy Naidu.

12. Tomatoes, Red, best 12. Rs. 3.—B. Krishnasawmy Naidu.

14. Chillies, best plate, Rs. 3.—St. Patrick's Orphanage.

15. Brinjals, best plate, Rs. 3.—Cunneappan, and N. Parthasarathy Naidu.

16. Bandikai, best plate, Rs. 3.—B. Krishnasawmy Naidu.

17. Potatoes, large, best plate, Rs. 3.—Madurai Ammall and Cunneappan.

18. Potatoes, small, best plate, Rs. 3.—Manicka Naicker.

19. Peas, best 2 plates, (shelled and unshelled), Rs. 3.—Rungasawmy Naidu.

20. Collection of Salad Plants, Rs. 3.—Ponnammall.

21. Lettuces, best 6, Rs. 3.—N. Parthasarathy Naidu.

22. Cauliflowers, best 6, Rs. 3.—Chengalraya Moodelly.

23. Collection of Edible Roots, Rs. 3.—Coopoosawmy Naicker.

Judges' Remarks.—The class as a whole was even and good. In brinjals, knol-khol and large potatoes we have recommended that the prize be divided between two competitors or that a special prize be given. We have also recommended a special prize to Murugasa Naicker for a good show of varieties of large potatoes. Several of the exhibitors did not pay attention to the regulations *re* quantity. There were, for instance, no shelled peas shown.

Class VII.—*Fruits.*

Judges.—Dewan Bahadur N. Subrahmanyam and Mr. J. Josselyn.

1. Raspberries, best plate, Rs. 3.—Moonoosawmy Chetty.

2. Strawberries, best plate, Rs. 5.—Moonoosawmy Chetty.

3. Peaches, best 12 fruits, Rs. 5.—A. Moonoosawmy.

4. Apples, best 12 fruits, Rs. 5.—Chidambaram and Kutti Chetty.

6. Sweet Oranges, best 12 fruits, Rs. 3.—Chidambaram.

7. Pumplemoses, best 12 fruits, Rs. 2.—Kannipiran Pillay.

8. Figs, best 12 fruits, Rs. 5.—C. Moonoosawmy.

9. Grapes *a*. 3 Bunches, White, Rs. 5.—Kutti Chetty; *b*. 3 Bunches, Black, Rs. 5.—A. Moonoosawmy.

10. Sapodillas, best 12 fruits, Rs. 3.—Allappa.

11. Melons, best 3 fruits, Rs. 3.—Munisawmy Naidu.

12. Collection of different varieties of Plantains, Rs. 3.—Manicka Naicker.

13. Lemons, best 12, Rs. 5.—Kutti Chetty.

14. Limes, best 12, Rs. 3.—Chidambara Pillay.

15. Guavas, best 12, Rs. 3.—Chidambara Moodelly.

16. Citrons, best 12, Rs. 3.—Chidambara Moodelly.

17. Green Cocoanuts (different varieties), Rs. 5.

An extra prize will be given for any new fruits in this class not exhibited in Madras before.—Santhoo Pillay.

Judges' Remarks.—The exhibits in each number of this class should be arranged together, so as to facilitate comparison and judging and to avoid any exhibit being missed. The exhibitors almost invariably exhibited a larger number of fruits in each class than was required by the conditions. If the conditions were strictly adhered to very few prizes would have been awarded. In almost all cases the exhibitors explained they were Bangalore men and had not heard of the conditions. It might be well to publish the conditions in the vernaculars.

CLASS IX.—*Vegetables (grown anywhere).*

Open to Government and Public Institutions.

Judges.—Major R. M. Bell and Mr. H. A. Nelson.

1. Best collection of English Vegetables. Prize, a Bronze Medal.—Coimbatore Jail.

Second prize, a Certificate.—Agricultural Farm, Saidapet.

2. Best collection of Indian Vegetables. Prize, a Bronze Medal. —Coimbatore Jail.

Second prize, a Certificate.—St. Patrick's Orphanage.

Judges' Remarks.—The collection of English Vegetables shown by the Coimbatore Jail was excellent both in quality and variety. The Indian Vegetables shown by the same exhibitor were of such a good quality that they carried off the prize. Although the Indian Vegetables exhibited by St. Patrick's Orphanage showed more varieties, they were poor in number and quality. The collection of English Vegetables shown by the Saidapet College of Agriculture gained the second prize.

CLASS X.—*Extra Prize List.*

Judges.—The Hon'ble Mr. A. J. Yorke, Mr. C. A. Barber and Dr. W. Keess.

The following prizes will be open to the produce of the Madras Presidency, Hyderabad, Mysore, Coorg, Travancore and Cochin :—

1. Collection of cleaned fibres, not less than 5 lbs. weight of each, with plants either growing or as botanical specimens. The fibres must have been recently cleaned. Prize, a Silver Medal.—Superintendent, Central Jail, Coimbatore—No Medal.

2. *a.* Best sample of Aloe fibre, not less than 5 lbs. Prize a Bronze Medal.—Mr. J. D. B. Gribble.

a. Fine, suitable for horses, etc., not less than 10 lbs. of each variety, Rs. 10.—H. E. The Governor.

b. Coarse, suitable for buffaloes, etc., not less than 10 lbs. of each variety Rs. 10.—H. E. The Governor.

4. Collection of Aromatic plants growing in pots. Prize, a Bronze Medal.—H. E. The Governor.

5. Sugarcane, best samples of cane, each sample to contain not less than 6 canes. Prize, a Silver Medal.—Botanical Gardens, Agricultural College.

6. A collection of Sorghums in ear, not less than 5 ears of each variety. Rs. 10.—Botanical Gardens, Agricultural College.

7. Vegetable Dyes used in dying locally and cloths dyed therewith. Prize, a Silver Medal or Rs. 10.—Manicka Naicker. Rs. 10.

8. A collection of Castors, not less than 5 spikes, and 2 lbs. of cleaned seeds of each variety, Rs. 10.—Manicka Naicker.

11. Silver or Bronze Medals awarded for any exhibits of special economic value, *e.g.*, rubbers; tobacco leaf grown locally fit for wrappers; tanning materials, etc.—Messrs. T. M. Rathnasawmy Pillay & Co., Royapuram, for tobacco leaf grown locally fit for wrappers.

Judges' Remarks.—The garden pots are not a useful lot. It should be made known that what is wanted is useful garden pots Regrettable lack of competitors in the class.

MR. NARAYANASAWMY CHETTY'S PRIZE.

Judges.—Mr. C. A. Barber and Mr. L. E. Kirwan.

Silver Medal for the first plant in the Show presented by Mr. G. Narayanasawmy Chetty.—Mr. R. T. Menzies' seedling croton. Commended.—Mr. Houghton's Caladium unnamed; Mr. Houghton's Caladium *Timbyra*; Mr. E. Norton's *Adiantum cuneatum*.

Judges' Remarks.—It is advisable when a special prize of this sort is offered that stipulation should be made as to whether it is intended for a flowering or foliage plant or fern.

The following is a list of the NEW CALADIUMS exhibited by Mr. H. E. Houghton.

1 Candidum.
2 Orphee.
3 Tennyson.
4 Golden Queen.
5 Lady Stafford Northcote.
6 Silver Queen.
7 Duchess of Fife.
8 Sir Henry Irving.
9 Gaze de Paris.
10 Madame Ed. Pynaert.
11 Lady Mosley.
12 Mrs. Harry Veitch.
13 The Mikado.
14 Madame Alfred Magne.
15 Mrs. Joicey.
16 Miss Ellen Terry.
17 Assunguy.
18 Mrs. McLeod.
19 Ibis Rose.
20 Mrs. Bause.
21 Reine de Denemark.
22 John Laing.
23 Baronne Clara de Hirsch.
24 L'Insolite.
25 Chelsea Gem.
26 Madame Leon Say.
27 Marie Mitjana.
28 Marguerite Gelinier.
29 Princess Olga.
30 Baronne James de Rothschild
31 Avilon.
32 Capibaribe.

33 Charlemagne.
34 Comtesse de Brosse.
35 Duke of York.
36 Cacapava.
37 Rio Janeiro.
38 Gireoud.
39 Barbacena.
40 Japura.
41 Timbyra.
42 Ibis Rouge.
43 Beija-Flor.
44 Leonard Bause.
45 Madame John Box.
46 Raymond Lemoinier.
47 Rose Laing.
48 Silver Cloud.
49 Albo Luteum.
50 Gaston Chandon.
51 Aymore.
52 General.
53 Conqueror.
54 Roncador.
55 Mundahu.
56 Obidos.
57 Chapico.
58 Lady Dorrington.
59 Major Joicey.
60 Pantia Ralli.
61 Ladas.

P. H. BENSON, Col., I.M.S.,
Honorary Secretary.

Financial Statement from January to March, 1905.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
By Balance with Messrs. Binny & Co. on the 31st December, 1904	893	11	10				To Salary of the Superintendent, Office and Garden Establishment	..	..	..	820	3	1
,, Do. of Petty Cash on hand on the 31st December, 1904.	200	0	0				,, Garden coolies, permanent ..	159	12	0			
				1,093	11	10	,, Do. temporary ..	100	7	9			
											260	3	9
,, Security of Cashier S. Thathachari deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0	,, Commission to the Superintendent for 4th quarter, 1904 ..	..	..	..	68	6	3
,, Subscription from Members of A Class	672	0	0				,, Purchases of seeds, plants, flowers, and fruit trees, etc. ..	..	..	..	731	11	0
,, Subscription from Members of B Class	204	0	0				,, Charges recoverable, Acount ..	..	..	..	263	0	8
				876	0	0	,, Garden requisites including pots, etc.	..	..	..	79	7	9
,, Government Grant for the month of December, 1904	250	0	0				,, Discount on mofussil cheques ..	0	12	0			
,, Government Grant for the month of January, 1905	250	0	0				,, Petty charges including carriage hire, etc.	19	0	3			
,, Government Grant for the month of February, 1905	250	0	0				,, Sundries including oil, etc. ..	0	11	0			
,, Government Extra Grant for Flower Show, 1905	500	0	0				,, Packing materials including baskets, etc.	18	2	8			
				1,250	0	0					38	9	11
							,, Furniture and plant account ..	..	..	..	10	10	9
							,, Books and periodicals account ..	..	..	..	13	3	0
							,, Printing and stationery account ..	..	..	..	103	7	0

,, Sales of seeds, plants, flowers and fruit trees, etc. ..	1,368	0	11				,, Postages and stamps account ..	54	15	6					
,, Sales of Ichthemic guano ..	15	0	0				,, Advertisement charges account ..	90	3	6					
				1,383	0	11	,, Garden expenses account ..	183	6	6					
,, Loan of plants account ..	301	9	0								328	9	6		
,, Outdoor work account ..	292	0	0				.. Audit fees account				50	0	0		
				593	9	0	,, Economic research account				32	6	0		
,, Flower Show admission tickets, etc.				893	4	0	,, Building account				490	0	0		
							,, Flower Show account				897	4	7		
							,, Ichthemic guano account				20	8	0		
							,, Outdoor work account				75	8	0		
							,, Security of Cashier deposited with Messrs. Arbuthnot & Co.				750	0	0		
							,, Balance of petty cash on hand on the 31st March, 1905 ..	200	0	0					
							,, Balance of general cash on hand with Messrs. Spencer & Co. on the 31st March, 1905 ..	1,576	6	6					
											1,776	6	6		
Total Rupees				6,839	9	9	Total Rupees				6,839	9	9		

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 18*th April*, 1905.

P. H. BENSON.
COL., I.M.S.,
Honorary Secretary.

Audited and found correct.
THOS. CRONAN,
Auditor.

N. SUBRAHMANYAM,
Honorary Treasurer.

PRINTED BY HIGGINBOTHAM & CO., MADRAS AND BANGALORE.

The Proceedings of the Agri-Horticultural Society of Madras for the 2nd Quarter ending the 30th June, 1905.

At a Committee Meeting held on the 1st May, the following gentlemen were present :—

The Hon'ble Mr. H. Bradley, I.C.S.	G. Narayanasawmy Chetty, Esq.
V. G. Lynn, Esq.	Col. P. H. Benson, I.M.S., *Honorary Secretary*.

Resolutions. -The following Resolutions were passed :—

1. That the Hon'ble Mr. Justice H. T. Boddam be elected Chairman for the ensuing year.

2. That the suggestions for the additions and alterations of the Prize schedule be circulated to the members of the Committee.

3 That Mr. C. R. Lakshmi-Varaham Iyer's letter be brought up at the next meeting for disposal, and that notice be given to the Committee members that at the next meeting, it will be proposed that the privileges of B Class members be enhanced, by allowing them the privilege of receiving Rs. 6 worth of seeds and Rs. 6 worth of plants in lieu of Rs. 12 worth of plants, the present privileges.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during the month of April :—

Report on the Experimental Farms in the Central Provinces for the year 1903-04.

Remarks on the preparation of Coffee, by Graham Anderson. Bulletin No. 48 of the Department of Agriculture, Central Experimental Farm, Attawa, Canada.

Contents :—Results obtained in 1904 from trial plots of *Grain*, *Fodder*, *Corn*, *Field Roots* and *Potatoes* by William Saunders, Ph.D., Director, and Charles E. Saunders, Ph.D., Experimentalist.

Experimental Station Record, Vol. XVI, Nos. 4, 5 and 6, issued by the U. S. Department of Agriculture.

Agricultural Bulletin of the Straits and Federated Malay States, Vol. IV, Nos. 1 and 2, edited by H. N. Ridley, Esq., M.A., F.L.S., Director.

Bulletin of Miscellanous information. Appendix II. 1905. issued by Sir William T. Thistleton Dyer. K.C.M.G., etc., Director, Royal Botanic Gardens, Kew.

The Agricultural Ledger Series, Bulletin No. 14, *Index*, edited by Sir George Watt, C.I.E., Economic Reporter to the Government of India.

The Journal of the Royal Horticultural Society, Vol. XXIX, Parts 1, 2 and 3, edited by the Rev. W. Wilks, M.A., Secretary.

Curtis's Botanical Magazine, Fourth Series. Vol. I. No. 4, or No. 1418, edited by Sir William T. Thistleton Dyer, K.C.M.G., etc.

Bulletin of the Department of Agriculture. Vol. III. Part 3, edited by William Fawcett, Esq., B.Sc., F.L.S., Jamaica.

West Indian Bulletin, Vol. V, No. 4, *Agricultural Conference*, Imperial Department of Agriculture, West Indies, Pamphlet series. —No 33, Seedling and other canes in the Leeward Islands. No. 34, Notes on Rabbit-keeping in the West Indies and Agricultural News, Vol. VI, Nos 73 and 74, issued by the Commissioner of Agriculture.

The *Indian Forester*, Vol. No. edited by E. P. Stebbing, Esq.

The *Gardeners' Chronicle*, Vol. XXXVII, Nos. 947, 948, 949, 950 and 951. *Purchased.*

The *Tropical Agriculturist*, and *Magazine* of the Ceylon Agricultural Society, New series, Vol. XXIV, No. 10, edited by J. C. Willis, Sc.D.

Annual Report on the Gardens of His Highness the Maharana Fateh Singhji Bahadur, G.C.S.I., of Udaipur, Mewar, for the year 1903-04.

The following Catalogues have also been received.

Vilmorin—Andrieux & Co.'s, General Wholesale List. The Yokohama Nursery Co., Ltd., General list of plants and seeds.

Plants and seeds issued. —The following plants and seeds were sent out during April :—

To the Honorary Secretary, Agri-Horticultural Society, Colombo, Ceylon.

2 lbs. of seed of Ricinus communis (castor oil).

To the Director, Public Gardens and Museum, Trivandrum, Ag. Superintendent, Royal Botanic Gardens, Calcutta, Superintendent, State Gardens, Bangalore, Curator, Government Botanic Gardens, Ootacamund. The Curator, Royal Botanic Gardens, Peradeniya, Ceylon ; to each of the foregoing ½ oz. of seed of Coffea robusta.

To the Director of Public Gardens and Museum, Durban, Natal, South Africa.

One case of 24 plants, by S.S. *Umlazi.*

To the Director, Royal Botanic Gardens, Kew.

One case of 17 plants.

To Miss Burns, Kilpauk, Madras.

One case of 18 plants and 36 Croton cuttings.

Plants and seeds received.—The following plants and seeds were presented to the gardens during April :—

From the Vice-Governor, Congo, French, South Africa.

1 lb. 14 oz. of seed of Coffea robusta.

From M. R. Ramakristna Iyer, Tinnevelly.

15 oz. of seed of Senna.

From F. W. Moore, Esq., Director, Royal Botanic Gardens, Glasnevin, Dublin, Ireland.

22 packets of seeds.

From the Director of the Imperial Botanic Gardens, Berlin, Germany.

4 packets of seeds.

From C. Michie Smith, Esq., Kodaikanal.

12 plants of Anæctochilos elatior.

New Members.—The following were proposed and elected ordinary members of the Society :—

A Class.—E. Campbell-Walker, Esq., J. Driver, Esq. and Thomas Richards, Esq.

B Class.—W. Marres, Esq.

SUPERINTENDENT'S NOTES.

Dr. Thomatis' Hybrid Cottons.—The Society has had brought to its notice, two wonderful Hybrid Cottons, *viz.*, Caravonica No. 1 Wool Cotton and Caravonica No. 2 Silk Cotton, both of which have been raised by Dr. Thomatis, on his plantations in Cairns, North Queensland.

A small quantity of seed of each of these hybrids together with sample bolls, were presented to the gardens by Dr. Thomatis in February last. The greater portion of the seeds were distributed amongst Planters on the hills, a small portion only being sown in the Nursery gardens.

Owing to the severe weather we are experiencing this year, no attempt has been made as yet to put them in the open ground, it is hoped, however, that should we have the usual early monsoon showers in July, a small plantation will be made in the open ground behind the Nursery, until this is an accomplished fact and the plants are bearing, it is impossible to say how the plants will flourish, and what their production will be. Judging however from the reports sent us by Dr. Thomatis, and from articles published in the Australian papers, "extracts of which are printed below." It is or should be the cotton of the future, and, being a "Tree Cotton it should have a great advantage over the annual cottons now being grown by the *Ryots* throughout the Presidency, in the District of Madura and Tinnevelly.

Parentage.—Caravonica No. 1 is the result of a cross between a long stapled Mexican cotton, and a Sea Island of Peru. The Mexican variety was chosen for its length, fineness and gloss and the Sea Island for its length and strength, the results of the combination have been to produce a very fine wool cotton. The hybrid is vigorous and robust, growing to a height of 15 feet, a single tree in the first year yielding upwards of 300 bolls. Dr. Thomatis, however claims that a full-grown tree will yield as much as 700 bolls. The bolls are very large—70 to the pound, 34 per cent. of which is lint, the other 66 per cent. representing the weight of the seed, this must be considered as highly satisfactory.

Caravonica No. 2 is the result of a second cross, between Caravonica No. 1 and a kidney cotton, this hybrid resembles Caravonica No. 1 in habit of growth, it is not however, such a heavy cropper, but the lint is much finer, and commands a higher market value. Dr. Thomatis has named this *silk cotton*.

Being perennials it will be possible to cultivate them in much the same way as coffee or any fruit tree. They require very little cultivation beyond an annual pruning, and cleanliness underneath the trees.

Dr. Thomatis in writing about his hybrids says :—"These varieties require a culture similar to all fruit trees, as, lemons, oranges, apples, etc. ; keeping the ground especially clean of weeds for the first two years. The trees can be pruned back as severely as one wishes ; by this operation the trees become rejuvenescent and more vigorous. Pruning should be done early in February, so that the new branches will bear prodifically in August following." (*This refers to the Australian climate and season, here the pruning would have to be at a season to ensure cropping in dry weather.*) "The pruning would also

check the trees from bearing all the year round, as they will do if unchecked, which is an inconvenience, as during the rainy season the cotton bolls are damaged, and, besides, the trees should have a rest, so as to gain growth."

"The trees grow to the size of an orange tree in less than two years, but they begin to bear a small maiden crop when only six months old, when they are already 7 feet to 8 feet high. They should be planted from January to May, during the Tropical rainy season, 7 feet by 7 feet apart. When fully grown they cover all the ground, and each tree will bear from 300 to 500 bolls—that is from 4 lbs. to 7 lbs. of seed cotton, or, about $1\frac{1}{3}$ lbs. to $2\frac{1}{3}$ lbs. of clean lint, worth over 10*d.* per lb. and about 900 trees or more can be put in per acre."

"During the first 12 months a catch crop could be sown between the rows of young cotton trees, such as rice, maize and sweet potatoes" (*here in India these could be supplemented with Casava, Groundnut, or even an annual Cotton*) "and these catch crops would almost defray the cultural expenses of planting, and do no harm to the cotton; on the contrary, preventing weeds coming up too quickly."

"Mr. Bottomley, cotton expert for the Lancashire Cotton Association, has lately been touring in Australia, and fully endorses Dr. Thomatis' statements and states that 'The Manchester firms have pronounced it to be long, strong and of regular staple, rather lacking in fineness.' Of all the cottons collected by the Association, the Caravonica was adjudged the most valuable, surpassing a new variety crossed by the eminent Sir Daniel Morris, British High Commissioner for Agriculture in the West Indies. The Caravonica can be sold in any quantities in the home markets at 9*d.* per lb. Seeds have been supplied to Government House, Berber, Soudan, and it appears it is intended to grow the Caravonica to a considerable extent on the plains irrigated by the Nile."

The production and manufacture of cotton is one of the largest industries in the world, Great Britain imported in 1903, £75,000,000 worth of raw cotton alone, and its manufacture formed the greatest industry in the United Kingdom. The greater portion of this cotton is imported from the United States, where it is said a 60th of the entire States is under cotton. India comes next in its cotton production, it being estimated that there are as much as 20,000,000 acres growing this produce alone, and yielding 3,000,000 bales annually.

The varieties of cotton at present cultivated in India leavd much to be desired. This fact is being fully recognised ane

efforts are being made to improve the quality by selection of seeds and the importation of fresh stock from other countries for hybridising purposes.

In 1860, the export of cotton from India rose from 3 million pound sterling, until 1866 it reached the enormous total of 37 million; on the restoration of peace with the United States, the exports rapidly fell until now they average a little more than quarter of what they were in 1866.

The reason why Indian-grown cotton cannot hold its own with that produced in America, is its short staple, which will not allow of its being used for spinning the finer qualities of yarn.

Should Dr. Thomatis' new hybrids therefore take kindly to the Indian climate and soil, and prove as productive as it is doing in Australia there is no reason to doubt, that with the available and unlimited supply of cheap labour, India should again come to the fore as the chief cotton producing country of the world.

COMMITTEE MEETING.

At a Committee Meeting held in the Society's Library on Monday, the 5th May, the following gentlemen were present:—

V. G. Lynn, Esq.
J. G. Smith, Esq.
H. E. Houghton, Esq.
The Hon'ble Mr. H. A. Sim, C.I.E., I.C.S.
G. Narayanasawmy Chetty, Esq.
Col. P. H. Benson, I.M.S., *Honorary Secretary*.

Read letter of apology for non-attendance from Mr. P. F. Fyson, in which he also expressed his approval of the subject to be discussed at the meeting, *viz* that B Class members should be allowed a free supply of seeds.

Resolutions.—The following Resolution was passed:—

Proposed by Mr. Lynn—that B Class members be allowed seeds to the extent of quarter of their annual subscription provided that they have been subscribers from at least the second quarter of the year. This was seconded by Mr. Houghton and *carried unanimously*.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during the month of May:—

Department of Land Records and Agriculture, Madras, Bulletin No. 51, Vol. III. Progress Report on the work of the Samalkot

Experimental Sugar Farm during the year 1903-04 by C. A. Barber, Esq., M.A., F.L.S.

Administration Report, 1904 of the Royal Botanic Gardens, Ceylon, Part V, by Dr. J. C. Willis, Sc.D., F.L.S., Director.

Bulletin No. 3 of the Agri-Horticultural Society of Western India; Notes on the cultivation of the *Fig* in Poona and the Deccan, by P. S. Kanetkar.

Report on the Operations of the Department of Land Records and Agriculture, United Provinces of Agra and Oudh, for the year ending 30th September, 1904.

The *Tropical Agriculturist* and *Magazine* of the Ceylon Agricultural Society, Vol. XXIV, No. 11, edited by Dr. J. C. Willis, Sc.D., F.L.S.

Records of the Geological Survey of India, Vol. XXXII, Part II, 1905.

The *Queensland Agricultural Journal*, Vol. XV, Part 6, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The Occult Review, April 1905, edited by Ralph Shirley, Esq.

University of California Publications—

Bulletin No. 158, *California olive oil*, its manufacture.

Bulletin No. 159, contribution to the study of *fermentation*.

Bulletin No. 160, the *Hop Aphis*.

Bulletin No. 161, *Tuberculosis* in *fowls*.

Agricultural Bulletin of the Straits and Federated Malay States, Vol. IV, No. 3, edited by H. N. Ridley, Esq., M.A., F.L.S.

Bulletin Vol. I, No. 1, from the Minister of Agriculture, Buenos Aires, South America.

Bulletin of the Lloyd Library of Botany Pharmacy, and Materia Medica.

Bulletin No. 7, Reproduction Series, No. 4, and Bulletin No. 8, Mycological Series, No. 3.

Curtis's Botanical Magazine, Vol. I, No. 5 or No. 1419, edited by Sir William T. Thistleton-Dyer, K.C.M.G., etc.

The *Indian Forester*, Vol. XXXI, No. 5 and *Index* for Vol. XXX, 1904, edited by E. P. Stebbing, Esq.

Trinidad Botanical Department, Bulletin No. 40 of Miscellaneous information, edited by J. H. Hart, F.L.S.

Bulletin of the Department of Agriculture, Vol. III, Part 4, edited by William Fawcett, Esq., B.Sc., F.L.S., Kingston, Jamaica.

The *Agricultural News*, Vol. IV, No. 75 and 76, and *Index* for Vol. III, January to December, 1904, issued by the High Commissioner of Agriculture for the West Indies.

The *Gardeners' Chronicle*, Vol. XXXVII, No. 952, 953, 954 and 955. *Purchased.*

Experimental Station Record, Vol. XVI, No. 7, from the U. S. Department of Agriculture, Washington.

Catalogue of *Mexican Orchids* and *Cacti*, from Messrs. J. Balme & Co., Mexico City.

Desiderata de Plantes Exotiques, Medicinales, Industrielles de Grande Culture on Caracteristiques D'ane Region Geographique, Fevrier 1905.

Seeds issued. The following seeds were issued during the month of May.

¼ oz. of Coffea robusta was forwarded to each of the Planting members, as also Zemindars, Rajahs and Land-holders who are members of the Society.

Plants and seeds received.—The following plants and seeds were presented to the Gardens during the month of May.

From Dr. Thomatis, Cairns, North Queensland.

1 packet of seeds of Golden leaf Tobacco, suitable for cigar wrappers.

From the Director, Royal Botanic Gardens, Kew.

9 packets of seeds.

From the Curator, Botanic Gardens, Cambridge, England.

22 packets of seeds.

From Mons. Henry Gaebel, Pondicherry.

1 packet of seeds of Cotton.

From Col. P. H. Benson, Honorary Secretary.

22 Orchids, collected from newly opened country beyond the Shan States.

From the Director, Natural History Museum, Paris.

62 packets of seeds.

From the Curator, Royal Botanic Gardens, Peradeniya, Ceylon.

2 bags of seeds of Corypha umbraculifera.

From H. N. Sands, Esq., Curator, Botanic Gardens, Trinidad

1 packet of seeds of Pritchardia Pacifica.

From the Director, Imperial Botanic Gardens, Germany

21 packets of seeds.

From the Director, Government Museum and Public Gardens, Trivandrum.

102 plants of sorts, selected by the Superintendent during his recent tour.

1 packet of spores of Asplenium nidus.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

Class A.—Sorabjee A. Merwanjee Eranee, Esq.

Class B.—J. Haskings, Esq. and Jas. F. Simpson, Esq.

SUPERINTENDENT'S NOTES.

Kidney Cotton.—The following is an extract of a letter from Dr. Thomatis to Mr. A. J. Wright, Mercara, Coorg :—

"The kidney cotton is a native of Peru and Mexico but I have improved it considerably, it is one of the parents of my caravonica No. II, it is a variety of Sea Island and of good commercial value. The tree is big and hardy and resists and stands well, long draughts and heavy scorching heat, it should therefore thrive in your district as also Southern India generally. It is besides a very heavy cropper, and I would certainly recommend growing a lot of this kidney cotton."

"As early as possible after May the sowing should be made in your district, or else soon after August to catch your showery period of light rains, heavy rains should supervene when the plantlets are about six weeks old, so as to best stand the down-pours. By sowing in June you will have a maiden crop from November to April, just your dry season. Seed may be planted $6\frac{1}{2}$ feet apart each way in your climate or 1,000 plants to the acre."

One pound of seed contains about 2,000 grains and suffices for about two acres. The seed should be sown at stake in the field in a cleared spot, sow $\frac{1}{2}$ inch deep, each spot only may be dug, loosened and refilled. If the sun be too hot, shade seedlings with leaves for one month. The seed should germinate in from 10 to 12 days. When sowing the ground should be moist, as after showers, or watered artificially, avoid all rain water pooling, or the seed will rot, be careful of worms which are fond of the seed. Do not practice transplanting or the plant may die."

Contributions.—The following contributions have been made to the Society during the month of June :—

Agricultural News : Vol. IV, No. 77 and 78 and Bulletin No. 36.—Manurial experiments with sugarcane, The West Indian Bulletin, Vol. VI, No. 1, issued by the Commission of the Imperial Department of Agriculture for the West Indies.

The Agricultural Ledger Series, No. 1 of 1905, *Schleichera trijuga*, by David Hooper, Esq., F.I.C.

Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon, Vol. III, No. 1. Notes on Dioscoreas (yams), by H. F. Macmillan, Esq., Curator, Royal Botanic Gardens, Peradeniya

Agricultural Bulletin of the Straits and Federated Malay States, Vol. IV, No. 4, edited by Mr. H. N. Ridley, Esq., M.A., F.L.S.

Bulletin, Vol. III, Part 5, of the Department of Agriculture, edited by William Fawcett, Esq., B.Sc., F.L.S., Jamaica.

Records of the Geological Survey of India, Vol. XXXII, Part 2, 1905.

Semi-Annual Report of Schimmel & Co., London and NewYork.

The *Tropical Agriculturist* and *Magazine* of the Ceylon Agricultural Society, Vol. XXIV, No. 12, edited by Herbert Wright, Esq.

Curtis's Botanical Magazine, Vol. I, No. 6 (fourth series) or No. 1420, edited by Sir William T. Thistleton-Dyer, K.C.M.G., etc.

The *Indian Forester*, Vol. XXXI, No. 6, edited by E. P. Stebbing, Esq.

The *Gardeners' Chronicle*, Vol. XXXVII, No. 956, 957, 958 and 959. *Purchased.*

The following pamphlets from the Agricultural Research Institute, Pusa, Behar :—

The *Success Knapsack Sprager.*

The *Cotton Leaf Hopper.*

The *Red Cotton Bug.*

The *Dusky Cotton Bug.*

The *Six Spotted Ladybird Beetle.*

A simple *spraying apparatus.*

Resin Washes as Insecticides.

Crude Oil Emulsion.

Kerosene Emulsion.

The *Preservation of seeds from insect attacks*, and *Lead Arsenites*, edited by H. Maxwell-Lefroy, Entomologist to the Government of India.

Seed and Plant Catalogue from Messrs. Law Sommer & Co., Melbourne, Australia.

Plants and seeds issued.—The following plants and seeds were sent out during June :—

To J. S. Sealy, Esq., Superintendent of the Cardamom Hills, Devikolam, North Travancore.

37 plants, a Miscellaneous collection.

To Major F. W. Dawson, Director, Government Museum and Public Gardens, Trivandrum, Travancore.

95 plants, a Miscellaneous collection.

To H. F. Macmillan, Esq., Curator, Royal Botanic Gardens, Ceylon.

24 seeds of Victoria Regia.
24 „ „ Eurayle ferox.

To C. A. Barber, Esq., Government Botanist, Chepauk.

2 oz. of seeds of Sweitenia Mahogani.

To Mrs. Simpson, Nungumbaukum, Madras.

1 plant of Ærides rosea.

Plants and seeds received.—The following plants and seeds were presented to the Society during June :—

From J. Driver, Esq., Dindigul.

1 packet of seeds of Dindigul tobacco.

From The Curator, Botanic Gardens, Grenada, British West Indies.

1 packet of seed of Randia mussændea.

From Mrs. Simpson, Nungumbaukum, Madras.

1 Kodaikanal Orchid.

From Mrs. J. S. Sealy, Devikolam, North Travancore.

One lot of bulbs of Sprekelia sp.

New Members.—The following were proposed and elected ordinary members :—

Class A.—Gazapati Raja Kripananja Deb, Ananga Bhema.

Class B.—H. M. Playfair, Esq. and Khirod Chandra Roy, M.A., M.R.A.S.

SUPERINTENDENT'S NOTES.

Caravonica Cotton.—Dr. Thomatis has forwarded to the Society samples of ginned lint from his noted hybrid cottons, as also his "Improved Kidney." Samples of the lint were forwarded to Messrs. Binny & Co., with a request that they might pass their opinion on same, at the same time the question was asked—whether Indian Mills would be able to receive and

work cotton of such long staple.—Messrs. Binny & Co., replied as follows :—

"We are in receipt of your No. 855 of the 22nd instant. The samples of cotton are all very good indeed and you may confidently recommend them as regards staple. There is no reason at all why Indian Mills should not use the longest staple cotton that can be grown. Long and short staple should not be mixed as the long would be spoiled in working, but, provided sufficient long staple cotton is available, the machines in Indian Mills can easily be adjusted to receive it. A Mill built for long staple cotton might probably not be adjustable for short staple cotton, but this you do not need to consider. Long staple cotton like your sample would find a ready market in Liverpool whether the Indian Mills took it up or not."

Succulents.—The succulent mound by the No. 2 Plant house, which was formed in 1901, had become overcrowded, and would not allow of the planting of the many new additions to this interesting class of plants, it was therefore determined to form a second mound on the opposite side of the walk, these alterations were completed towards the end of the month. In addition to forming a new mound, the direction of the walk has been slightly altered, and some ugly curves have been corrected, which have added greatly to the appearance of this part of the gardens.

The following have been added to the collection of succulents :—

Agave Verschafelti.
„ celsiana.
„ Desartii.
„ Jacqueana.
„ recurvata.
„ rigida.
„ „ var. ixts.
„ sp. No. 1 (*Prain*).
Aloe Bainesii.
Yucca gloriosa.
„ aloefolia rosea.
„ serrulata.
„ turnata.
„ draconis.
„ recurva.
„ reflexa.
„ cressifolia.
„ aloefolia.
„ variegata.
Sansevieria latifolia.
„ macrophylla.
„ trifaciata.

Weather.—The continued draught has caused a most anxious time in the gardens, all classes of plants having suffered more or less. Two large trees, *viz.*, Pterospermum Heyneanum and Parkia Rokburghi from the evergreen forests of the West Coast have died, and many others look very untidy with their young growths scorched and dried up. Cocoanut

palms, which have been left to chance by villagers on account of their wells giving out, are gradually dying, many have their foliage as yellow as a guinea, whilst others have so shrunk, that the wind has snapped their tops and so crippled them.

The Sisal hemp plants behind the Nursery felt the effects of the draught, and hand watering had to be resorted to, to keep the plants alive, it is very evident the Sisal is not so hardy as the *Agave Americana*, or the *Agave Vivipara syn. Wightii* neither of which appear to have suffered.

The wells in the gardens have been kept in constant use for flooding the borders and shrubs planted in the open ground. They have fair springs, and can still be worked with the picottah. The Vizianagram and Victoria tanks which are supplied with Red hills water have had to be run dry for economy's sake; a large Poinciana regia in the Nursery gardens, came down in a light breeze without any precious warning, the roots on examination were found to be all dry-rotted, several other trees of the same kind have fallen in other parts of Madras and at St. Thomas' Mount, this would tend to show that this tree more than any other is susceptible to the dry weather.

Kohl Rabi.—According to some recent remarks made in the *Madras Mail* the origin of this vegetable appears to be wrapped in mystery, a brief account of the parents of Kohl Rabi and the cabbage family may help to clear any doubts as to the origin, etc., of these two vegetables. Both these plants belong to that useful and economic Nat, order Crucifera, but more especially to the type of the order, *viz.*, Brassica.

Brassica oleracea, *The True Cabbage* is at the present day found wild as a straggling herb on the sea cliffs of the South-West of England, Wales and Ireland, in the Channel Isles, as also in the Island of Laland and Heligoland. It is much prized by the inhabitant of those parts, who collect the leaves and use them as a vegetable. Like all our other vegetables the origin of the cultivation of this wild form is obscured by time, their cultivation however was originally confined to Europe and our earliest records come to us from the ancient Greeks and the fact that none of their variety names are derived from the East, should prove that their cultivation was originally confined to Europe. The chief cultivated forms known at the present day are Forma acephala (*Scotch Kale, Cow Cabbage, borecole*); Forma bulbata and gummifera (Brussels Sprouts and Savoys); Forma capitata (*red and white cabbage*); Forma caulorapa (*Cole Rabi* or *Kohl rabi*), and Forma Botrytis (*Cauliflower and Broccoli*). These again are divided into sub-varieties too numerous to mention.

Brassica campestris is distributed throughout Europe as also temperate and sub-tropical Asia. Its sub-species are—

1st.—Campestris (*Sweedish turnip*), its distribution extends into Artic Europe.

2nd.—Napus (*Rape or Cole seeds*) yield Colza and Carcel oil.

3rd.—Rapa. Turnip.

According to some authors. Rapa and Campestris should be fused into one species.

Judging from the character and habit of the vegetable, Kohl Rabi, one might presume to say it is a hybrid, either natural or artificial between *Brassica oleracea* and *Brassica Campestris*. 1st, Because botanically its flowers and foliage agree with those of B. oleracea. 2nd, The swollen stem and the hardiness of the plants (it will withstand the severest frost of England) are characteristic of the Sweedish turnip B. Campestris.

To within a few years ago it was grown in England as a field crop only, and was then used as food for cattle, in the same way as Mangle Wurzel are now used. Later it came into favour as a vegetable and was found to be an excellent substitute for the turnip when these failed either through draught or the attack of eel worms, both of which the Kohl Rabi is innume to.

For use as a vegetable it must be grown quickly to insure the swollen stem being tender and sweet, when grown slowly or checked in its growth, as is often the case in Madras, the swollen stem becomes hard and stringy, with a hot taste like Mustard. In England the seeds are sown in drils about 18 inches apart, and after germinating the seedlings are thinned out to 15 inches apart in the rows, they are generally ripe for harvesting about October, when they are pulled up, and the tops removed by twisting them off (not cutting as this causes them to bleed) they are then stored away in pits, and covered with soil, and will keep quite fresh until the following March. In some cases when the land is not required they are allowed to remain in the open ground and will thus stand frost and snow without any harm.

As a vegetable it is invaluable, as it will apparently grow in any climate.

Orchids.—There have been several additions in this class of plants, notably a collection comprising *Dendrobium Celogyne*,

Cirrahpetalum, and several of the Tribe *Vandeæ ;* collected in some newly opened country beyond the Shan States, *viz.*, Oikii Salwe Hills by Mr. Lichfield, Survey of India, who presented them to Col. P. H. Benson, who in turn very generously gave them over to the gardens. Some of the *Dendrobiums* have peculiar swollen stems, somewhat like *Dendrobium crassinoides*, but differing from this species, in that the stems are peculiarly, and deeply compressed at the nodes, giving them a distinct character. Also several ground orchids were collected at Kotagiri and presented to the Society by Col. Benson. During the month Vanda Roxburghii has been in full flower on many of the trees in the gardens.

Financial Statement from April to June, 1905.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
By Balance with Messrs. Spencer & Co., Ltd., on the 31st March, 1905	1,557	2	10				To Salary of the Superintendent, Office and Garden Establishments	..	..	..	1,184	7	6
,, Do. of Petty Cash on hand on the 31st March, 1905 ..	200	0	0				,, Garden Coolies, Permanent ..	172	8	9			
							,, Do. Temporary ..	55	14	0			
,, Security of Cashier S. Thathachari deposited with Messrs. Arbuthnot & Co.	..	..	..	1,757	2	10					228	6	9
,, Subscription from Members of A Class	672	0	0	750	0	0	,, Commission to the Superintendent for 1st quarter, 1905 ..	..	..	..	87	1	2
,, Subscription from Members of B Class	96	0	0				,, Purchases of Seeds, Plants, Fowers and Fruit Trees, etc. ..	..	..	..	841	7	2
				768	0	0	,, Charges recoverable ..	..	..	..	185	9	1
,, Government Grant for the month of March, 1905	250	0	0				,, Garden requisites including Pots, Manure, etc.	..	..	..	56	9	0
,, Government Grant for the month of April, 1905	250	0	0				,, Discount on Mofussil Cheques ..	0	12	0			
,, Government Grant for the month of May, 1905	250	0	0				,, Petty charges including Carriage-hire, etc.	22	2	4			
				750	0	0	,, Sundries including Oil, etc. ..	0	6	0			
,, Sales of Seeds, Plants, Flowers and Fruit Trees, etc. ..	1,291	11	5				,, Packing materials including Baskets, etc.	14	12	7			
											38	0	11
							,, Furniture and Plant account ..	..	..	..	7	1	3
							,, Books and Periodicals account ..	..	..	..	78	10	3
							,, Printing and Stationery account ..	..	..	..	121	0	9

,, Sale of Ichthemic guano ..		5	8	0				,, Postages and Stamps account ..	51	13	0			
					1,297	3	5	,, Advertisement charges account ..	27	11	6			
								,, Garden expenses account ..	82	0	0			
												161	8	6
								,, Flower Show account ..	..		..	88	10	6
								,, Out-door work account ..	..	..	..	2	8	0
								,, Taxes account	..	..	..	64	0	10
								,, Travelling expenses of the Superintendent account	..	..	..	247	11	0
								,, Red Hills Water-supply account ..	..		..	98	11	5
								,, Security of Cashier deposited with Messrs. Arbuthnot & Co. ..	..	..	..	750	0	0
								,, Balance of petty cash on hand on the 30th June, 1905 ..	200	0	0			
								,, Balance of general cash on hand with Messrs. Spencer & Co., Ltd., on the 30th June, 1905 ..	880	14	2			
												1,080	14	2
Total Rupees ..	..	..	..		5,322	6	3	Total Rupees ..	..	..	..	5,322	6	3

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 12*th July*, 1905.

P. H. BENSON,
COL., I.M.S.,
Honorary Secretary.

Audited and found correct.
THOS. CRONAN,
Auditor.

N. SUBRAHMANYAM,
Honorary Treasurer.

PRINTED BY HIGGINBOTHAM & CO., MADRAS AND BANGALORE.

Proceedings of the Agri-Horticultural Society of Madras for the 3rd Quarter ending the 30th September, 1905.

At a Committee Meeting held on the 3rd July, the following gentlemen were present:—

The Hon'ble Mr. H. Bradley, I.C.S., *Chairman.*
The Hon'ble Mr. H. A. Sim, I.C.S., C.I.E.
V. G. Lynn, Esq.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
G. Narayanasawmy Chetty, Esq.
Col. P. H. Benson, I.M.S., *Honorary Secretary.*

Resolutions.—

1. Read letter from the Honorary Secretaries of the Central Agricultural Committee, asking us to elect a representative to serve on that Committee. Read also the Hon ble Mr. Castle-stuart Stuart's letter.

Resolved, that the Honorary Secretary for the time being be nominated as representative.

2. Read letter from Officer-in-charge, No. 2 Sub-division, P. W. D., regarding the substitution of a wall for the present hedge to the South of St. George's Cathedral.

Resolved, that Government be informed that the Committee have no objection.

3. Read letter from Mr. Bottomley, asking if the Society would make a small grant of £10 in return for which he would send 50 copies of his work on "Caravonica Cotton."

Resolved, that Mr. Bottomley's offer be refused.

4. Resolved, that the spare packets of seeds be distributed to the several charitable institutions.

5. Resolved, that one acre of Caravonica cotton be planted in the nursery as an experiment.

6. Resolved, that Government be asked to complete the compound wall on the Mount Road side of the gardens.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during July:—

The *Indian Textile Journal*, Vol. XV. Nos. 177 and 178.

Report on the Government Botanical Gardens, Saharanpur and Mussoorie, for the year ending the 31st March, 1905

Report on the Government Horticultural Gardens, Lucknow, for the year ending the 31st March, 1905.

Report on Experimental Plantations in the Federated Malay States for the year 1904.

Report on the Season and Crops of Assam for the year 1904-05, by H. C. Barnes, Esq., I.C.S.

Annual Report on the Botanic Gardens, Singapore and Penang, for the year 1904, by H. N. Ridley, Esq., M.A., etc.

Annual Report of the Dumraon Experimental Farm for the year 1903-04.

Cotton-growing in the Northern Territory of South Australia, with map, by Mr. John Bottomley.

Bulletin No. 2, 1905, of the *Agricultural Ledger* series. Subject, *Phaseolus lunatus*, Lima or Duffin bean, by Sir George Watt, Reporter on Economic Products to the Government of India.

Report on the Trivandrum Museum and Public Gardens for the year 1903-04.

Annual Report on the Taj and other Government Gardens at Agra for the year 1904-05.

The *Tropical Agriculturist and Magazine* of the Ceylon Agricultural Society, Vol. XXV, No. 1, edited by Herbert Wright, Esq.

The *Queensland Agricultural Journal*, Vol. XVI, Part 1, edited by A. J. Boyd, Esq., F.R.G.S.Q.

Bulletin of the Department of Agriculture, Jamaica, Vol. III, Part 6, edited by William Fawcett, Esq., B.SC., F.L.S.

Curtis's Botanical Magazine, Fourth series, Vol. I, No. 7, edited by Sir William T. Thistleton Dyer, K.C.M.G., etc.

Bulletin of the Royal Botanic Gardens, Kew, Appendix III—1905.

Records of the Botanical Survey of India, Vol. IV, No. 2.

Circulars and *Horticultural Journal* of the Royal Botanic Gardens, Ceylon, Vol. III.

No. 2. The Chemical and Physical Properties of the Soil from the Tea Plots at the Experimental Station, Peradeniya, by A. Bruce, Esq.

No. 3. The Chemical and Physical Properties of the Soil from the Cocoa Plots at the Experimental Station, Peradeniya, by A. Bruce, Esq.

No. 4. Ornamental Climbers and Creepers, by H. F. Macmillan, Esq.

Du Vanillier (Vanilla) par A. D. J. Achart, Pondicherry.

Imperial Department of Agriculture for the West Indies, No. 37: Cultivation of oranges in Dominica.

Agricultural News, Vol. IV, Nos. 79 and 80, issued by the Commissioner of Agriculture for the West Indies.

Pamphlet on Cotton-growing in North Queensland, by Mr. John Bottomley.

University of California Publications :—

Twenty second Report on the Agricultural Experiment Station of the University of California.

Bulletin No. 162, Commercial Fertilizers, by George Roberts, Esq.

Bulletin No. 163, Pear Scab, by Ralph E. Smith, Esq.

Bulletin No. 164, Poultry Feeding and Proprietary Foods, by M. E. Jaffa, Esq.

Transactions of the Wisconsin Academy of Science, Arts and Letters, Vol. XIV, Part 2, 1903.

Hawaii Agricultural Experiment Station.

Bulletin No. 7, the Banana in Hawaii.

Bulletin No. 10, the Pineapple Scale.

Experimental Station Record, Vol. XVI, Nos. 8 and 9, issued by the United States Department of Agriculture.

The *Gardener's Chronicle*, Vol. XXXVIII, Nos. 960, 961, 962 and 963. Purchased.

Argotti Botanic Gardens, Floriana, Malta, exchange seed catalogue for 1905-06.

George Morton & Co.'s Catalogues of Apparatus of Histology and of Anatomical, Pathological and Museum specimen jars, etc.

Seeds issued. The following seeds were sent out during July :—

To the Director, Public Gardens, Pondicherry.

½ lb. of seeds of *Cananga odorata*.

To R. L. Proudlock, Esq., Curator, Government Botanic Gardens, Ootacamund.

1 oz. of Cotton seed. Caravonica. No. 1.
1 „ „ „ No. 2.
1 „ „ „ Improved kidney.

Seeds received. The following seeds were presented to the Gardens during July : —

From E. B. Powell, Esq., Langham Hotel, Madras.

1 packet of *Lilium Nilghiriense*.
1 packet of seeds of Japanese "Morning Glory."
1 „ „ *Iris Kæmferi*.

From the Director, Public Gardens, Pondicherry.

1 packet of seeds of *Pitha-fife* Cotton.

From the Superintendent, Guindy Park.

½ lb. of seeds of *Cananga odorata.*
1 packet of seeds of *Dillenia indica.*
1 ,, ,, *Castanaspermum Australe.*

From the Superintendent, Experimental Farm, Poona.

3 lbs. of Maize seeds, *Hickory king.*
2 ,, ,, *Field corn.*
1 ,, ,, *Sweet corn.*

From the Superintendent, Central Jail, Coimbatore.

3 oz. of Brinjal seeds, *New York purple.*

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

Class A.—E. W. Rutherford, Esq., and G. W. Bickley, Esq.

Class B.—V. Narasimha Rao, Esq , and W. E White, Esq.

COMMITTEE MEETING.

At a Committee Meeting held on 7th August, the following gentlemen were present :—

The Hon'ble Mr. Justice R S. Benson, I.C.S. (*in the Chair*).

V. G. Lynn, Esq.

A. L Hannay, Esq., I.C.S.

The Hon'ble Mr. H. A. Sim, I.C.S., C.I.E.

H. E. Houghton, Esq., F.R.B.S., F.R.H.S.

G. Narayanasawmy Chetty, Esq.

P. F. Fyson Esq., F L.S., *Ag. Honorary Secretary.*

Resolutions.—

1. The proposal of the Superintendent to have another leaf-mould pit dug at an estimated cost of Rs. 83-2-8, which is to include the cost of carriage of the material excavated to the place where the Superintendent requires it, was passed.

2. The suggested alterations in the Schedule of prizes, etc., for the Annual Show, which had been circulated to members of the Committee, were discussed and some passed.

3. The Committee adjourned till Thursday the 10th instant, to finish their discussion on the proposed alterations.

COMMITTEE MEETING.

At the Adjourned Committee Meeting held on the 10th August, to consider the Prize list of the next Horticultural Show, the following gentlemen were present :—

A. L. Hannay, Esq., I.C.S., *in the Chair.*
V. G. Lynn, Esq.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
N. Subrahmanyam, Esq., *Honorary Treasurer.*
P. F. Fyson. Esq.. F.L.S., *Ag. Honorary Secretary.*

Resolutions.—

1. Certain alterations in Class IV and Class VII in the Prize Schedule were passed.

2. Resolved, that Class X be referred to Mr. C. A. Barber, with a request that he be good enough to favour the Committee with a revised schedule.

3. Resolved, that the question of change of date of the Annual Show be left over till the next General Meeting.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during August :—

Annals de L'Institut Central Ampélologique, Royal Hongrois, Tom. III, Livraison 2. 1905.

The *Indian Forester*, Vol XXXI, No. 7, edited by E. P. Stebbing, Esq., F.L.S., F.Z.S., F.E.S.

A note on the Bee-hole Borer of Teak in Burmah, by E. P. Stebbing, Esq., F.L.S., F.Z.S., F.E.S.

The *Queensland Agricultural Journal*, Vol. XVI, Part 1, edited by A. J. Boyd, Esq., F.R.G.S.Q.

University of California Publications, Bulletin No. 165, Asparagus and Asparagus Rust in California, by Ralph E. Smith, Esq.

Circulars and *Agricultural Journal* of the Royal Botanic Gardens, Ceylon.

Vol. III, No. 7, Administration Reports for 1904.

Vol. III, No. 5, Indian Corn, *Zea Mays* in Ceylon, by Herbert Wright, Esq.

Bulletin of the Imperial Institute, Vol. III, No. 1, edited by Prof. W. R. Dunstan, F.R.S.

Agricultural Bulletin of the Straits and Federated Malay States, Vol. IV, Nos. 5 and 6, edited by H. N. Ridley, Esq., M.A., F.L.S.

Curtis's Botanical Magazine, Fourth series, Vol. I, No. 4, or No. 1422, of the entire work, edited by Sir William S. Thistleton-Dyer, K.C.M.G., etc.

Season and Crop Report of Bengal for the year 1904-05.

Flora of the Upper Gangetic Plain and of the Adjacent Siwalk and Sub-Himalayan Tracts, Vol. I, Part 2, by J. F. Duthie, Esq., B.A., F.L.S.

The following Catalogues :—

Bulbs, Messrs. William Bull & Sons.

Bulbs, Messrs. J. C. Schmidt.

Bulbs, Messrs. E. H. Krelage & Sons' catalogue for 1905.

Bulbs and Miscellaneous, Messrs. Vilmorin Andrieux & Co.

The *Gardener's Chronicle*, Vol. XXXVIII, Nos. 964, 965, 966 and 967. Purchased.

Agricultural News, Vol. IV, Nos. 81 and 82, issued by the High Commissioner of Agriculture for the West Indies.

The *Indian Textile Journal*, Vol. XV, No. 179.

Report on the Botanic Gardens, British Guiana, for the year 1904-05.

Seeds received.—The following seeds were presented to the Gardens during August :—

From J. Medley Wood, Esq., Director, Public Gardens and Museum, Durban, Natal.

28 packets of seeds, a miscellaneous collection.

From the Superintendent, Agricultural Demonstrative Farm, Trivandrum, Travancore.

1 packet of seeds of cotton (Peruvian).

New Members.—The following gentleman was proposed and elected an ordinary member of the Society :—

Class B.—Col. H. St. C. Carruthers, I.M.S.

COMMITTEE MEETING.

At a Committee Meeting held in the Gardens on the 4th September, 1905, the following gentlemen were present : —

The Hon'ble Mr. Justice H. T. Boddam (*in the Chair*).

The Hon'ble Mr. Justice R. S. Benson, I.C.S.

N. Subrahmanyam, Esq., *Honorary Treasurer*.

The Honb'le Mr. H. A. Sim, I.C.S., C.I.E.

J. G. Smith, Esq.

H E. Houghton, Esq., F.R.H.S., F.R.B.S.

G. Narayanasawmy Chetty, Esq.

P. F. Fyson, F.L.S., *Ag. Honorary Secretary*.

Resolutions.—

1. Read letter from the Revenue Board with respect to the wall along the Mount Road.

Resolved, that the Government be informed that the Society is not in a position to build the wall.

2. Resolved, that Mr. Barber's revised schedule of Class X of the Prize Schedule be printed as recommended.

3. Read letter from Col. P. H. Benson, I.M.S., resigning the Honorary Secretaryship of the Society on his transfer to Bangalore.

Resolved, that the Committee accept his resignation with much regret and congratulate him on his appointment, and that they express their thanks for his services.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during September:—

Report on the Experimental Farms, Ottawa, for the year 1904.

Bulletin Vol. I, fasc. 5 and 6, Du Jardin Botanique de L'Etat á Bruxelles, Juillet, 1904, and Mai, 1905.

The *Indian Forester*, Vol. XXXI, No. 9, edited by E. P. Stebbing, Esq., F.L.S., F.Z.S., F.C.S.

Inspectie Van den Landbouev in West Indie, Verslag over het Jarr, 1904.

The *Agricultural News*, Vol IV. Nos. 83 and 84, and the West Indian Bulletin, Vol. VI, No 2, issued by the High Commissioner of Agriculture for the West Indies.

Agricultural Bulletin of the Straits and Federated Malay States, Vol. IV, No. 8, edited by H. N. Ridley, Esq., M.A., F.L.S.

Bulletin Vol. III, Part 8 of the Department of Agriculture, West Indies, edited by William Fawcett, Esq., B.SC., F.L.S.

Acta Horti Petropolitani, Tomus XXIV, fasciculus 11.

Annual Report on the Government Cinchona Plantation and Factory in Bengal for the year 1904-05.

Bericht uber den Botanischen Garten und das Botanische Museum zu Berlin im Rechnungsjahr, 1904.

Report on the Administration of the Government Botanical Gardens and Parks, Nilgiris, for the year 1904-05.

Annual Report of the Royal Botanic Gardens, Calcutta, for the year 1904-05.

The *Indian Textile Journal*, Vol. XV, No. 180.

Circulars and *Agricultural Journal* of the Royal Botanic Gardens, Ceylon.

No. 6. Pará rubber in Ceylon, by Herbert Wright and A. Bruce.

No. 12. Green Manures, by Herbert Wright.

The Potato and its culture, with lists of varieties found most useful, by W. T. Macoun, Horticulturist of the Experimental Farm, Ottawa, Canada.

The Milling and Chemical value of the Grades of Wheat, in the Manitoba inspection division, Part I, by Chas. E. Saunders, PH.D., Part 2, by Frank T. Shutt, M.A.

From the Department of Agriculture, Madras :—

Bulletin Vol. III, No. 52. The Agathi Plant.

Bulletin Vol. III, No. 53. The Cultivation and Curing of Tobacco, as followed near Dindigul, Madura District.

From the Department of Land Records and Agriculture, United Provinces of Agra and Oudh :—

Bulletin No. 19. Improvements in Native Methods of Sugar Manufactures.

Bulletin No. 20. A method of improving the drinking water in the Tarai.

Journal of the Agri-Horticultural Society of Western India, October 1904 to March 1905.

Cronica Agricola, Ano. I, No. 6, issued by the Ministerio de Agricultura, Buenos Aires.

The *Gardener's Chronicle*, Vol. XXXVIII, Nos. 968, 969, 970 and 971. Purchased.

The following Catalogues :—

Fruit and ornamental trees, Low, Somner & Co., Melbourne.

Cacti and Succulent plants, Friedrich Adolph Haage, Jun.

Bulbs, Damman & Co., Italy.

Bulbs and Daffodils, Barr & Sons, London.

Wholesale seed list, Vilmorin Andrieux & Co., Paris.

Seeds received.—The following seeds were presented to the Gardens during September :—

From the Superintendent, Guindy Park, Madras.

1 packet of seeds of *Brassaia actinophylla.*

From the Curator, Royal Botanic Gardens, Peradeniya, Ceylon.

6 packets of seeds of palms (named).

Plants and seeds distributed.—The following plants and seeds were sent out during September :—

To the Superintendent, People's Park, Madras.

199 plants, Miscellaneous collection.

To the Superintendent, Guindy Park, Madras.

100 seeds of Caravonica, No. I.
50 „ „ „ Improved.
100 „ Improved Kidney Cotton,

To C. F. Baker, Esq., Santiago-de-las-Vegas, Cuba.

19 packets of seeds (miscellaneous collection).

New Members.—The following gentlemen were elected ordinary members of the Society during September :—

Class A.—H. C. Wickham, Esq.

Class B.—Syed Altaf Husain, Esq., and S J. Loane, Esq.

SUPERINTENDENT'S NOTES.

Caravonica and other Cottons.—The waste ground behind the Nursery has been partly cleared of weeds and planted with the following varieties of cotton :—

Date.	DESCRIPTION.	Plants. No. of rows.	Seed. No. of rows.
	Caravonica No. 1 (Thomatis) ..	1	3
	,, No. 1 Improved (Thomatis).	1	3
	,, No. 2 ,, ,,	..	6
	Improved Kidney Cotton (Thomatis) ..	7	..
	Peruvian Tree (seed collected in Teynampett)	2	..
	Peruvian Tree from Mr. P. Bligh ..	1	..
	,, ,, ,, Dr. Lehmann ..	1	..
	,, ,, ,, Trivandrum ..		..
	Oopum ,, Tinnevelly ..	1	..
	Karungauri ,, ..	1	..
	Tree Cotton from Calcutta ..	1	..

The plants have been put in rows 8 feet by 8 feet. Cassava, three varieties of which were received from Poona last year, has been planted between the rows at distances of 2 feet apart in the rows. The ground has had very little preparation, merely having been dug one mamootie deep in the spot where the seed was sown ; no manure of any kind has been used. The soil is inclined to be sandy, and hand-watering has had to be resorted to, on account of the continuance of the dry weather.

Seeds of Caravonica Nos. 1 and 2, as also the Improved Caravonica No. 1, have been sown in red soil at Guindy Park. It will be interesting to see in which of the two soils they thrive best. The first consignment of seeds was received in March, and some were distributed to planting Members of the Society and to others interested in Agriculture.

Mr. Gadsden in a letter dated the 21st August, 1905, gives the following interesting notes on the result of his experiments :—

" In March last you were good enough to supply me with a few seeds of the Caravonica Cottons Nos. 1 and 2, and as you will probably be interested to know the result of the experi-

ment as far as it has been conducted, I am sending you the following notes :—

The seeds were planted on the 19th March, 1905, in red gravelly soil on which vegetables had been previously grown. Of the ten seeds of No. 1, I only got six plants, and of No. 2. I got five plants. With one exception, these have all grown remarkably well. The most forward plant of No. 1 kind began to blossom in the middle of June when about 2½ feet high and the others about 15 days later. No. 2 plant only commenced to blossom in the end of July. On the 15th of August I had the buds, blossoms and bolls on one of the No. 1 plants counted and there were 703. It is evident also that many more buds will appear. Five bolls have already ripened and there are signs that these will now continue to ripen daily. The other No 1 trees are not so forward. I am sending you a sample of the cotton picked to-day. The No 1 tree which has now commenced to crop is about five feet high, and covers a diameter of five feet, the lower branches been weighed down to the ground by the weight of the crop. It looks quite healthy. I see by the report in the *Madras Mail* that each tree is said to yield 300 to 500 bolls in a season, but from the present appearance of the tree I have referred to above, I should say it would yield at least 1,000 bolls.

"I should be glad of your advice as to whether I ought to allow these trees to go on bearing indefinitely, or whether something should be done to stop them. Of course it would be interesting to note how many bolls these trees will bear before they stop, but at the same time I do not wish to ruin the trees. I may add that they have been irrigated about four times a month. Do you think I should stop irrigating them altogether ?

"So much interest is now been taken in this cotton, that you may like to publish this information. Should you desire to do so, I have no objection. I shall be pleased to show the trees to anyone who wishes to see them."

The sample of lint forwarded by Mr. Gadsden was quite equal to that sent by Dr. Thomatis.

The Director of Agriculture, Mercara, Coorg, in a letter dated the 22nd August, says :—"The Caravonica tried in Coorg has been successful, as the plants are some 4½ feet high and doing well."

Dr. Thomatis has still further improved upon his Hybrid Caravonica No. 1 and by last Mail forwarded to the Society a few seeds and a sample of the lint. He states that this Improved Wool Cotton has yielded 49 % of cleaned lint, an increase of 10 % on last year's crop and 20 % on the previous year's crop.

Palmyra Fibre.—Dr. Watts' Agricultural Ledger, Series No. 20, 1894, contains an exhaustive article upon the Palmyra *Borassus flabelliformis*. Amongst its many useful products are mentioned the stiff fibres obtained from the leaf stalk,

which compare favourably with *Piassaba*. Samples of the fibre were reported on by Mr. C. E. Collyer of the Imperial Institute who, in his remarks, says :—" The stiff fibre extracted from the base of the sheath of the leaf stalk, when in mature condition, is of a dark colour, tough and supple in quality, and is in considerable favour as a broom and brush-making material. It has rapidly become one of the best substitutes for *Piassaba*, notwithstanding a tendency to curl in warm and dry weather."

Owing to irregular shipments the market for this fibre was very uncertain. The preparation of the fibre appears to have received more attention during the present year. This may probably be due to the very adverse season we have had coolies having been glad to do anything to make a few annas daily.

One firm in Madras has been doing a brisk trade. It would seem that the fibre now fetches a good price, varying from £20 to £26 per ton, and is quickly bought up. The Rev. J. W. Cowdy, of the London Mission, stationed at Cuddapah, informed me that their head-quarters in London are prepared to take all the fibre of this tree they can get. This offer has been the means of affording work to coolies who would otherwise have had to remain idle.

The Rev. gentleman subsequently sent me a few notes on the manner of the preparation of the fibre for the London Market, which I give in detail.

A few weeks ago when I was in Madras I was speaking to you about the Palmyra fibre industry in which I was interested, and which I had just seen in very successful working in one of our Mission Districts. Afterwards you wrote to me to see if I could give you some further information on the subject, and now I have much pleasure in replying to your note.

The leaf of the palmyra is attached to the trunk of the palm by two sheaths—that is to say, towards the trunk of the tree the stem of a leaf divides into 2 parts. To obtain the fibre, cut the leaf whilst it is green and sever the stem just where it begins to divide. Then pull the 2 sheaths away from the trunk a little, and cut them with a shar-ppointed knife parallel with the ground, about 10 to 20 inches (according to size) from where the stem was severed. These sheaths are taken and beaten thoroughly with a wooden mallet to loosen the fleshy part, and then are passed over a comb made with about 12 four-inch blunt-pointed country nails, which have been put through a flat board about ¾ inch apart and in 2 rows.

After passing the sheath a dozen times or so over the comb the pulpy part will be removed, the fibre remaining. The fibre is then put out in the sun to dry. After it is thoroughly dried, it is again cleaned over another closer comb, then sorted out into sizes, and tied up in bundles of about 3 or 4 inches diameter ready for exportation.

To save writing a very long letter of explanation I will tabulate briefly a few general particulars.

i. The fibre is made up in bundles of different sizes, from 8 to 21 inches in length, and these assorted bundles are worth about £20 per ton on the London markets.

ii. The fibre, to make it pay, must be procurable for Rs. 6-8 per cwt. as it is, just after it has been put out in the sun to dry (see above), or Rs. 10-8 per cwt. when ready for exportation.

iii. It is used for brooms, brushes, etc., and for caulking ships.

iv. The black fibre is the best and is worth £30 per ton. White fibre is useless.

v. Good fibre is only procurable from the *female* palmyra tree.

vi. It takes any number of leaves from 1,000 to 1,500 to make a cwt. of fibre, and depends of course on the size of the leaves.

vii. A man and his son working hard for 5 days should beat out about a maund of fibre.

viii. The short waste fibre which comes in the process of combing out is used for making ship's fenders.

ix. I am told that a fibre is also got from the stem of the palmyra leaf and used for making ropes. This, however, I have not experimented with.

x. The leaves can be used for thatching purposes.

xi. The leaves further south where the fibre is keenly sought after cost about Re. 1 for 500. In other Districts where this Industry does not exist and the trees are not tapped for sugar, etc., the leaves can often be bought for one or two thousand for the Rupee.

I trust the above will give you all the particulars you want. If there is any further information I can help you to get, I shall be pleased to do so.

By rail parcel I am sending you 3 bundles of the fibre as samples. They represent the minimum, medium and maximum sizes of the fibre on the market, and are chosen out of an assortment that was shipped to London at £20 per ton.

Lodoicea Seychellarum.—Coco-de-Mer, Double or Sea Cocoanut.

This palm was referred to in the Proceedings for the 3rd quarter, 1904, two seed nuts having then been presented to the Gardens by the Natural History Society, Bombay. Of these, one germinated and, after a period of 12 months, has developed a leaf bud.

The seeds were placed in pots in August 1904. The *hypocotyle* made its first appearance on the 27th September, 1904, and the leaf bud burst through the soil on the 31st of August, 1905. The following method was adopted in germinating the seed:—

An 18" pot was three-fourths filled with broken crocks, and water poured in almost to the level of the crocks. The seed nut was then placed on this, care been taken that it did not come

in actual contact with the water; a flat seed-pan was then placed over the top of the pot, to exclude light and to assist in retaining the moisture. The pot was placed in the coolest and darkest corner of the plant house, and the water kept at a constant level, thus ensuring a sufficiency of moisture for the nut. When the *hypocotyle* was about 6 inches long, the nut was planted at the head of a tank, in a mound of old potting soil; the centre where it was intended the *hypocotyle* should descend being pure sand. The *hypocotyle* near the nut was about $\frac{3}{4}$ of an inch in diameter, but rapidly increased in thickness, until when 3 feet long it measured $1\frac{1}{2}$ inches in diameter. The top portion, which was partly exposed, had a corky appearance, but the portion below ground was softer and very much resembled the rachis of an *Agaricus*. The leaf bud burst through the *hypocotyle* about $1\frac{1}{2}$ feet below the surface, the roots developing considerably lower down. During the whole process of germination the nut has been carefully guarded by a wire box, and has been heavily shaded with gunny bags. The shade, however, has now been considerably reduced, only the sun being kept off between 9 A.M. and 4 P.M. This is the first instance on record in which the Double Cocoanut has germinated in Madras, and it is believed that only in two other Public Gardens in India is the plant to be found, *viz.*, the Royal Botanic Gardens, Calcutta, and the State Gardens, Baroda.

From descriptions of this palm quoted by travellers, it is said to be gigantic in its growth, rising from 50 to 60 feet, and sometimes even to 80 feet, with a straight stem 1 foot in diameter. Like the cocoanut, the stem is crowned with a tuft of from 20 to 30 leaves, which are very large, some measuring 20 feet in length and 12 feet in breadth. In form they somewhat resemble the leaf of *Pritchardia Pacifica* only on a much larger scale. The male and female flowers are borne on separate trees.

Previous to the discovery of the Seychelles Islands in 1743, which are the only known Islands where this palm is indigenous, all sorts of wild and romantic stories were told of it, and the nuts which were often picked up on the West Coast of India, on the Maldives and Sumatra, were highly prized and commanded fabulous prices.

Since the discovery of their country of origin, however, they naturally were less valued as curiosities. At the present day, however, they are still prized by the natives of India, who use them for a number of purposes.

In the Cannanore Jail, these nuts are beautifully carved by the prisoners, and are converted into all sorts of useful and orna-

mental articles, such as cigar boxes, toilet cases, not-at-home boxes, etc.

A Visit to Travancore.

In accordance with the Resolution passed at the Committee Meeting held on the 31st March, I left Madras on the evening of the 6th May on a tour through Travancore.

Arriving by train at Quilon on the morning of the 8th, I left by boat on the Backwater for Trivandrum in the evening, arriving the following morning.

The new extension of the South Indian Railway from Shencottah to Quilon runs through rich forest, surpassing anything I saw when on my tour in Malabar in 1903. From the luxuriance of the Forest growth, I was greatly impressed with the adaptability of this part for Pará cultivation. The rainfall is good, and many of the valleys are, I believe, well preserved from the ill-effects of high winds.

Three days were spent in Trivandrum, and Major Dawson, I. A., the Director of the Public Gardens and Museum, afforded me every help to see all that was worth seeing there. He also kindly allowed me to make a selection of plants which were new to Madras. The Gardens are situated to the east of the Town, and are well laid out and neatly kept. The undulating character of the land lends itself to Landscape Gardening and advantage had been taken of this, as was evidenced by the fine terraces from the Museum down to the ornamental waters, the banks of which had been planted with Bamboos, which having grown into large massive clumps, were very effective.

At various parts of the Gardens were seen some fine specimens of timber and other trees, amongst those especially noticeable being *Hura crepitans* and *Artocarpus hirsuta*, the latter a valuable timber tree.

The Museum, a fine specimen of old Dutch architecture, is situated at the highest point of the Gardens, the numerous small gables peculiar to this style of architecture giving it an unique and picturesque appearance. The collections of birds, animals, fishes and insects of Travancore are well represented, the arrangement of the animal section being especially good. There was also a very interesting and complete collection of woods, judging by which the Travancore forests must be immensely rich in timber. I learnt later on, however, that the difficulty of transport reduces the profit of working the forest to a minimum, and in some cases to a loss. Mineralogy and Economic Botany had not apparently received much attention, as exhibits of these were very poor.

A little below the Museum is a well-stocked Zoological Garden.

The plant houses were especially interesting, containing as they did many new and rare plants. Amongst the most recent introductions, I noticed the stag-horn fern *Platycerium sp.*, numerous varieties of the *Begonia Rex*, besides several fine Orchids.

The journey from Trivandrum to Kottayam was made by the Backwater in a substantial *vulan*, or country boat. This form of travelling is very slow and our average speed could not have exceeded 2½ miles per hour.

Travancore is most fortunate in having these Backwaters, which lend a cheap and easy means of travelling and of forwarding goods of all description. The Backwaters consist of natural rivers and lakes, and where nature has not connected these, canals have been formed. In no place are they distant from the sea more than 3 miles, and in some parts they are separated from the sea by a strip of sandy land not exceeding a few hundred yards in breadth.

In two places between Trivandrum and Quilon the hills have had to be tunnelled, the longest of these being three-quarters of a mile. The work, I believe, was done by Cornish miners about 10 years ago.

The vegetation along the banks of the canals and Backwaters is of a varied description. The most common trees are *Artocarpus hirsuta* and *Calyophyllum microcarpus*.

Acanthus ilicifolius, *Acrostichum aureum* and *Connarus monocarpus* were common along the whole route. Such plants as *Jasminum*, *Bambusa vulgaris var aurea*, *Canna*, *Bougainvillea*, etc., had no doubt been introduced, probably at the time of forming the canals. The cocoanut is planted in all directions, and as on other parts of the West Coast a large trade is done in copra, fibre, etc. Oil is extracted from the fruit of the *Punnay maram* for local consumption, it being used for lighting purposes. It burns with a reddish flame and is easily distinguished from the flame produced from cocoanut oil which burns with a clear white light.

The first important place reached after leaving Quilon is Alleppy, the chief seaport town of Travancore The produce of the Hills, *viz.*, tea, coffee, copra, cocoanut fibre and oil, wax, ivory, honey and lemon-grass oil, are brought down and shipped from here to all parts of the world. Alleppy boasts a good tramway, pier and a lighthouse.

The canal runs through the centre of the town, with numerous side branches. The presence of so much water, which is far from clean, is no doubt the cause of so much sickness here,

typhoid and other kindred ailments being hardly ever absent. *Pistia stratiotes* is common, and develops heads almost as large as a cabbage lettuce.

Kottayam is a small busy town at the foot of the Ghaut road from Peermaade, on the banks of the Vambanaad lake, and distant from Allepy some 18 miles.

The Vambanaad lake is the largest in Travancore, measuring 16 miles across at its widest point, with varying depths In the dry season when the waters are considerably lowered, large areas known as Flats are put under paddy cultivation.

At Kottayam, Mr. Shankara Menon, the Dewan Peishcar, to whom I had letters of introduction, was very kind in procuring me transit to take me up the Ghaut, and for several other little kindnesses I am deeply indebted to him. From here to Peermaade, distant 45 miles, the British Resident's summer quarters, the journey was very slow.

The cultivation on the lower slopes was identical with what I saw in Malabar, together with the same ruthless clearing of forest land for paddy cultivation. All this part of the country up to 2,000 feet should be found excellent land for the cultivation of Pará rubber.

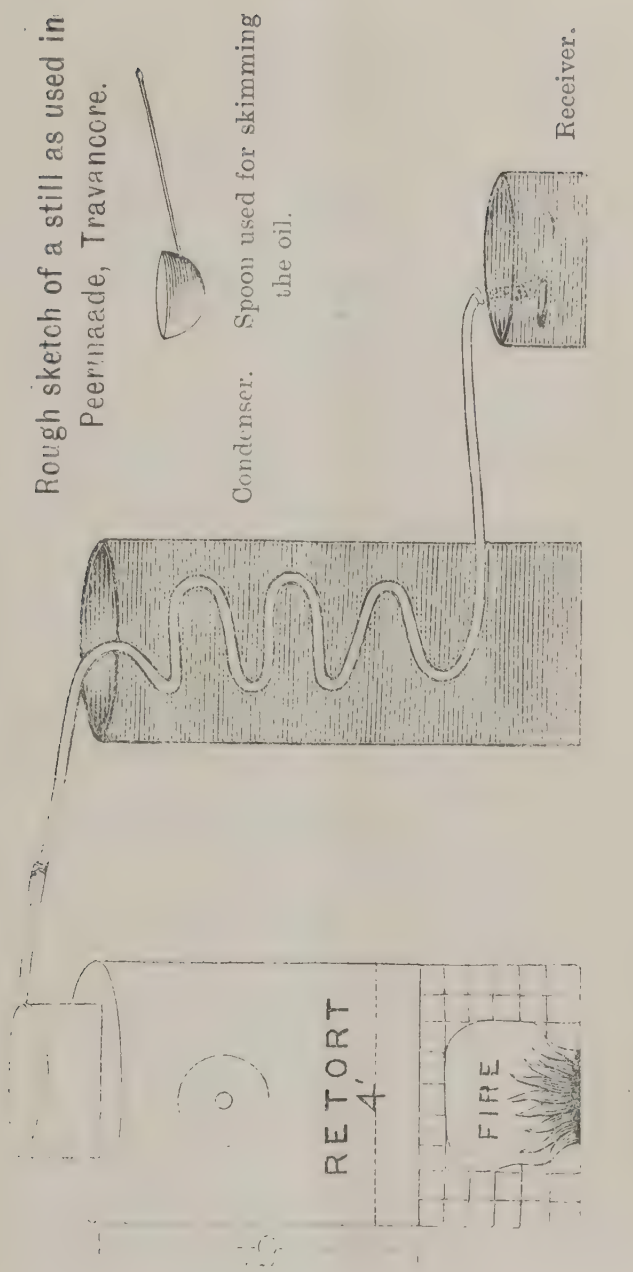
At Mundakayam, at the thirty-fifth milestone, is situated the Rani Rubber Estate. As the estate was 3 miles off the main road, and its locality had not been pointed out to me, and was not shown on my map, I unfortunately missed paying it a visit. I, however, heard from planters, whom I met later, that the growth of the Pará here was excellent and gave every promise of good results. The soil is good with abundant rainfall.

I collected in these parts several orchids of the *Dendrobium*, *Aérides* and *Cœlogyne* general and noted fine forest specimens of such trees as the *Pterocarpus Marsupium*, *Artocarpus integrifolia*, *Artocarpus hirsuta*, *Tectona grandis*, *Dyospyros sp.*, *Calophyllum sp.*, and many others.

Lagerstræmas were in full flower and were a magnificent sight, growing as they did in great profusion all around.

At Peermaade a prominent industry among the natives appears to be the extraction of oil from lemon-grass, *Andropogon citratus*. This grass grows in profusion on all the slopes around Peermaade. There are apparently two varieties, white and red-stemmed.

I was fortunate in seeing two native stills in full work, and was able to gather the few following particulars upon the working of the same :—



The retort measures roughly 5 feet by 4 feet and is made entirely of copper, and rests upon a masonry foundation, with the fireplace formed underneath. The top lid and a portion of the escape pipe are in one piece All the joints fit close, but to make quite sure of there being no weak joints they are all coated with clay. From the top of the retort a copper pipe is connected and runs in spirals through a large barrel of water, which thus forms a crude condenser, the oil being caught in a rough earthenware pan (receiver). There are several such pans in use and as they are filled they are put on one side to allow the oil to float on the surface. It is then skimmed off with a

spoon and generally stored in old kerosene tins. A retort when fully charged holds about 1,000 bundles, equal to about 750 lbs. and to this is added about 40 gallons of water. It takes 6 hours to distil a fully charged retort, which yields on an average ½ bottle, equal to 1 pint of crude oil. The oil thus collected is largely impregnated with foreign matter, and it would repay anyone to buy this oil and re-distil it before despatching it to the Coast. The price of the crude oil obtained by the native in Alleppy varies considerably, but Rs. 101 may be accepted as a fair average price for 3 gallons. The native only works the red-stemmed variety, although they both appear to be equally good.

The road from Peermaade to Kumily passes through the Tea and Coffee Districts. The tea looked particularly healthy, but coffee had a neglected appearance, and some estates appeared quite abandoned. *Grevillea robusta* appears to be the favourite shade tree for tea. It struck me that this tree was rather overplanted, though this particular part of the hills may require a heavy shade for the tea. After passing the estates the road ran through a jungle almost entirely of Bamboo, a dwarf variety. I was told this was a favourite breeding place for elephants.

Kumily is a small town of little importance, on the Madura side of the borders of Travancore. Here is the head sluice of the famous Periyar Project.

After leaving Kumily the country assumes a different aspect. The dry hot winds, blowing up from the Madura plains, had left their mark upon the vegetation, which had a dried, half-starved appearance. The characters of the plants also differ, *Sanseverias*, *Aloes* and *Euphorbias* being in especial evidence. It being the height of summer, there was nothing worth noting in the Madura District.

At Bodainaikanur which is a flourishing town about 10 miles from the foot of the Kanan Devan Hills, on the high road between here and Amanaikanur, there is a very comfortable Travellers' Bungalow, a great relief after the dilapidated Bungalows we had met on our way. In one place where we had to halt the night there was no Bungalow and we had to put up in a Church!

The Kanan Devan Hills are a part of the Western Ghauts and a continuation of the Kodaikanal Hills, from which they are distant 40 miles. Messrs. Finlay, Muir & Company have opened up this part of the country, and from the Top Station to Munaar, a distance of 24 miles, tea, coffee and cinchona estates are frequent.

To economise cooly labour, a ropeway has been erected on the Ghaut, down to within 2,000 feet of the plains. The

entire length of this ropeway is $2\frac{1}{4}$ miles, and I was told it was unique in being the steepest in the world, rising as it does in this distance from 2,000 to 6,000 feet. Its motive power is electricity, which is generated by the help of a waterfall which is situated about half way up. The save of labour is enormous. Not content with the ropeway, a Mono-Rail has been laid from the Top Station to Munaar. Electricity is being introduced to all the tea factories, so that one might safely say that this is the only place in Southern India where tea is grown and cured on up-to-date lines.

The country in this neighbourhood is delightful. The beautiful grass slopes are here and there relieved by well wooded valleys, while such British wild flowers as *Buttercups*, *Groundsel*, *Blackberries* and many others are found growing in profusion.

Devikolam, the head-quarters of the Chief Magistrate, is distant from Munaar about 3 miles. Although my time was short, I was glad I had not missed this portion of my trip, the Sholas on the way and those surrounding Devikolam being rich in Orchids of which I collected quite a number. A species of Calamus grows in profusion here, the branches cut and dried making very fine cane, which is put to all sorts of uses by the Natives. I was unfortunate in not meeting Mr. Sealy (the District Magistrate) who was away in Camp.

After leaving Devikolam I made my way back by Munaar to the Top Station and on to Amanaikanur, breaking my journey for one night at Bodainaikanur.

At Pondicherry.

As previously arranged I broke my journey at Villupuram, and ran down to Pondicherry for one day to see the Public Gardens there, but more especially the Vanilla plantations. Mons. Achard very kindly showed me round, and gave me a lot of information about his Vanilla, on which I hope to make a few notes at some future time. In the Public Gardens there is a particularly fine specimen of the Canon-ball tree, *Couroupita Guianensis*. This tree which is probably the oldest of the kind in Southern India, flowers and fruits freely every year. The next best specimen of this tree, I think, is in the Burliar Experimental Gardens, Nilgiris. There are several artesian wells in the gardens which give an unfailing supply of water. Mons. Achard takes a great interest in these Gardens and has besides edited a very instructive hand-book of all the useful plants in and around Pondicherry.

In conclusion I tender to those gentlemen, who in many ways assisted me in my tour my best thanks. More especially would I thank Mr. J. Andrew, I.C.S., British Resident, and the Hon'ble Mr. Madhava Rao, C.I.E., Dewan to H. H. the Maharaja of Travancore, for their valuable assistance, without which my tour would not have been the success that it has been.

Financial Statement from July to September 1905.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
By Balance with Messrs. Spencer & Co., Ltd., on the 30th June, 1905	880	14	2				To Salary of the Superintendent, Office and Garden Establishments	..	..	..	1,199	3	6
,, Do. of Petty Cash on hand on the 30th June, 1905 ..	200	0	0				,, Garden Coolies, Permanent ..	184	9	11			
				1,080	14	2	,, Do. Temporary ..	116	14	10			
,, Security of Cashier S. Thathacharier deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0					301	8	9
,, Subscription from Members of A Class	770	0	0				,, Commission to the Superintendent for 2nd quarter 1905 ..	..	..	..	46	15	10
,, Subscription from Members of B Class	123	0	0				,, Purchases of Seeds, Plants, Flowers and Fruit Trees, etc. ..	..	..	..	1,304	13	5
				893	0	0	,, Charges recoverable ..	..	..	..	327	13	6
,, Government Grant for the month of June 1905	250	0	0				,, Garden requisites, including Pots, Manure, etc.	..	..	..	136	4	6
,, Government Grant for the month of July 1905	250	0	0				,, Discount on Mofussil Cheques ..	0	12	0			
,, Government Grant for the month of August 1905	250	0	0				,, Petty charges including Carriage-hire, etc. ..	17	12	3			
,, Government Extra Grant for the year 1905 . ..	500	0	0				,, Sundries, including Oil, etc. ..	0	6	0			
				1,250	0	0	,, Packing materials, including Baskets, etc.	36	8	11			
											55	7	2
							,, Furniture and Plant account ..	..	..	..	6	3	9
							,, Books and Periodicals account ..	..	..	..	0	4	0
							,, Printing and Stationery account..	..	..	..	167	15	6

,, Sale of Seeds, Plants, Flowers and Fruits, Trees, etc. ..	2,274	5	2				,, Postages, Stamps and Telegrams account	76	11	9			
,, Sale of Ichthemic guano ..	53	8	0				,, Advertisement charges account ..	48	6	6			
				2,327	13	2	,, Garden expenses account ..	259	13	8			
,, Out-door work account of Laying Gardens				3,000	0	0					384	15	11
							,, Flower Show account ..	..	..	..	297	0	0
							,, Out-door work account ..	..	..	..	1,111	0	0
							,, Red Hills Water-supply account ..	..		..	204	12	10
							,, Building account	..	..	..	63	3	0
							,, Audit Fees account	..		..	50	0	0
							,, Security of Cashier deposited with Messrs. Arbuthnot & Co. ..	..	..	..	750	0	0
							,, Balance of petty cash on hand on the 30th September, 1905 ..	200	0	0			
							,, Balance of general cash on hand with Messrs. Spencer & Co., Ltd., on the 30th September, 1905 ..	2,694	1	8			
											2,894	1	8
Total Rupees ..	..	..	..	9,301	11	4	Total Rupees ..	..	..	..	9,301	11	4

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 12*th October*, 1905.

N. SUBRAHMANYAM,
for *Honorary Secretary*.

Audited and found correct.
THOS. CRONAN,
Auditor.

N. SUBRAHMANYAM,
Honorary Treasurer.

PRINTED BY HIGGINBOTHAM & CO., MADRAS AND BANGALORE.

Proceedings of the Agri-Horticultural Society of Madras for the 4th Quarter ending the 31st December, 1905.

COMMITTEE MEETING.

At a Committee Meeting held in the Society's Library, on Monday, the 6th November, the following gentlemen were present:—

The Hon'ble Mr. Justice H. T. Boddam (*in the Chair*).
The Hon'ble Mr. H. Bradley, I.C.S.
V. G. Lynn, Esq.
J. G. Smith, Esq.
A. L. Hannay, Esq., I.C.S.
P. F. Fyson, Esq.
H. E. Houghton, Esq.
G. Narayanasawmy Chetty, Esq.
N. Subrahmanyam, Esq., *Honorary Treasurer and Ag. Honorary Secretary.*

Letters.—The following letters were read:—

1. From Mrs. Barber, asking for a contribution and the loan of plants for a Fancy Bazaar.

2. From F W. Tytler, Esq., giving particulars of a new hybrid cotton, "Snowflake," raised by himself; and asking the Society's help in making this hybrid known to planters and others.

3. From John Bottomley, Esq., offering to send to the Society a portion of the Caravonica hybrid cottons recently exhibited at the Melbourne Royal Agricultural Show.

Resolutions.—The following Resolutions were passed:—

1. That the Superintendent be instructed to give Mrs. Barber plants and cut flowers, but not seeds.

2. That Mr. Tytler be helped as far as possible, and that though the Society cannot undertake the sale of his seeds, it will forward any orders received to him.

3. That Mr. Bottomley be asked to furnish more particulars of the cotton exhibit before the Committee accept his offer.

4. That this Society should advertise in *Indian Planting and Gardening* for 12 months.

5. That the estimate amounting to Rs. 550 for the erection of a Verandah to the front portion of the Superintendent's Bungalow be passed, and the work put in hand at once.

6. That Mr. L. E. Kirwan be invited to undertake the duties of Honorary Secretary, on his return from England.

Contributions. –The Honorary Secretary then intimated that the following contributions had been made to the Society during October and November :—

Journal of the Agri-Horticultural Society of Western India, October, 1904, to March, 1905, inclusive.

Proceedings and Journal of the Agri-Horticultural Society of India. January to June, 1905

Government of Madras, Revenue Department :—

G. O. No. 816, 4th September, 1905, Report on the Operations of the Agricultural Department.

G. O. No. 901, 19th September, 1905, Hagari Farm.

G. O. No. 930, 26th September, 1905, Cotton.

G. O. No. 767, 19th August, 1905, Agricultural Farm.

G. O. No. 1059, 30th October, 1905, Reclamation of Saline Soil.

A paper on "Co-operative Agricultural Associations," by H. K. Beauchamp, Esq., C.I.E., extracted from the *Indian Review*; and the Report of the first Meeting of the Central Agricultural Committee

Annual Report of the Botanic Gardens and Government Domain, New South Wales, for the year 1904.

The *Indian Textile Journal*, Vol. XVI, Nos. 181 and 182.

Report of the Department of Land Records and Agriculture, Assam, for the year ending the 30th June, 1905.

Annual Report of the Department of Land Records and Agriculture in the Bombay Presidency, for the year 1903-04.

Annual Report of the Department of Agriculture and Stock, Queensland, for the year 1904-05.

The *Tropical Agriculturist and Magazine of the Ceylon Agricultural Society*, Vol. XXV, Nos. 3 and 4, edited by J. C. Willis, Esq.

Annual Report of the Government Gardens and Parks in Mysore, for the year 1904-05.

Report on the Experimental Farms in the Central Provinces, for the year 1904-05.

The *Indian Forester*, Vol. XXXI, Nos. 10 and 11, edited by E. P. Stebbing, Esq , F.L.S., etc.

The *Queensland Agricultural Journal*, Vol. XVI, Parts 1 and 2, edited by A. J. Boyd, Esq., F.R.G.S.Q.

Circulars and Journal of the Royal Botanic Gardens, Ceylon :—

Vol. III, No. 12. Green Manures Extract from the Annual Report for 1904, by Herbert Wright, Esq.

Vol. III, No. 13. The Composition of Soils for Fodder Growing and Grazing, by M. Kelway Bamber, Esq.

Curtis's Botanical Magazine, Vol. I., Nos. 9 and 10, edited by Sir William T. Thistleton-Dyer, K.C.M.G., etc.

Bulletin No 25, 1905. Sugarcane. Notes by J. B. Knight, Esq., M.SC., Professor of Agriculture, Bombay.

Bulletin of the Department of Agriculture, Vol. III, Parts 9 and 10, edited by William Fawcett, Esq., B.SC. etc., Jamaica

Agricultural Bulletin of the Straits and Federated Malay States, Vol. IV, Nos. 6 and 9, edited by H. N. Ridley, Esq., M.A., F.L.S.

Second General Memorandum on the Indian Cotton crop of the season 1905-06, issued by the Government of India, Commercial Intelligence Department.

Land Records Administration Report, Rangoon, for the year ending the 30th June, 1905.

The *Gardeners Chronicle*, Vol. XXXVIII, Nos., 972, 973, 974, 975, 976, 977, 978, 979, 980. Purchased.

The *Agricultural News*. Vol. IV, Nos. 85, 86, 87, and 88, issued by the High Commissioner of Agriculture for the West Indies.

Contribution á la Flore Bryologique de la Vallée D'Aoste, Italie.

Annual Report on the Board of Agriculture and Department of Public Gardens and Plantations, Jamaica, for the year ended the 31st March, 1905.

Plants and Seeds Issued.—The following plants and seeds were sent out during October and November :—

To G. H. Krumbeigel, Esq., Superintendent, State Gardens, Baroda.

9 Plants, miscellaneous collection.

To J. Cameron, Esq., F.L.S., Superintendent, Government Gardens and Parks, Mysore.

6 Coffea robusta.

6 ,, Zanquebaria.

To N. G. B. Kirwan, Esq., Arabidecool Estate, Chikmagalur

29 economic plants.

To Messrs. Lever Bros., Pacific Plantation, Limited, Sunlight Works, Sydney.

2 cases of Indian fruit trees consisting of Mangoes. Limes, Oranges, Roseapple, Guava, Pomegranate, Bilimbi, Plantains, Breadfruit, Woodapple, Pomelo and Averrhoa Carambola.

To R. W. Johnson, Superintendent, Municipal Public Gardens, Nagpur, C. P.

30 Croton cuttings.

To T. R. Sim, Esq., Conservator of Forests, Pietermaritzburg, Natal.

57 packet of seeds.

To Messrs Rudrappa and Sons, Lal Bagh Road, Bangalore.

33 ornamental plants.

Plants and seeds received.—The following plants and seeds were presented to the Gardens during October and November.

From C. Benson, Esq., Deputy Director of Agriculture, Madras.

4 oz. of seed of River's Sea Island Cotton.

From Dr. W. Kees, Principal, College of Agriculture, Madras.

5 packets of seed of cotton, country and local varieties.

From J. Cameron, Esq., F.L.S., Superintendent, Government Gardens and Parks, Mysore.

20 plants of Rex Begonias.

From L. E. Kirwan, Esq., Nungumbaukum, Madras.

1 packet of Melon seed.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

Class A.—Capt. S. E. Falconer, I. S. M. D.

Class B.—Ed. Breithaupt, Esq., The Rev. F. M. Macnamara, S. J., and Lt. E. Parbury, R.A.

Contributions.—The following contributions were made to the Society during the month of December :—

The *Queensland Agricultural Journal*, Vol XVI, Part 3. Edited by A. J. Boyd, Esq., F.R.G.S.Q.

Bulletins issued by the Central Experimental Farm. Ottawa, Canada.

No. 52. Insects Injurious to Grain and Fodder Crops, Root Crops and Vegetables, by James Fletcher, LL.I., etc.

No. 52. Bacon pigs in Canada, by J. H. Gridsdale and B. Ager.

Experimental Station Record, Vol. XVII, No. 2, issued by the U. S. Department of Agriculture.

Semi-Annual Report of Schimmel & Co., London and New York.

Records of the Geological Survey of India, Vol. XXXII, Part 3, 1905.

Publications of the University of California.

Circular No. 15. Recent Problems in Agriculture.
Bulletin No. 166. Spraying for Scale Insects.
,, No. 167. Manufacture of Dry Wines in Hot Countries.

Publications No. 170. Studies in Grasshopper Control.
,, No. 171. Commercial Fertilizers.

Bulletin of Miscellaneous Information, from the Royal Botanic Gardens, Kew.

Bulletin of the Imperial Institute, Vol. III, No. 3. Edited by Prof. Wyndham Dunstan.

The *Indian Forester*, Vol XXXI. No. 12, edited by E. B. Stebbing, Esq., F.L.S., etc.

The Agricultural Ledger Series, issued by the Reporter on Economic Products to the Government of India:

No 3. Saltpetre.

No 4. Mallotus Phillipinensis.

Publications of the Central Agricultural Committee, Madras.

Report of the Third Committee Meeting.

Note on Banker Paddy.

Circular No. 2. Economical Paddy Planting.

,, No. 3. Agricultural Experiments in Tanjore.

,, No. 4. Grain Banks—The Hon'ble Mr. D. M Hamilton's Scheme.

Agricultural Statistics of the Lower Provinces of Bengal for 1904-05.

Report of the Agricultural Branch of the Department of Land Records and Agriculture, Bengal, for the year ending the 31st March, 1905.

Annual Report on the Experimental Farms in the Bombay Presidency, for the year ending the 31st March, 1905.

Season and Crop Report of the Bombay Presidency, for the year 1904-05.

Report on the Cawnpore Farm and other Experimental Stations in the United Provinces, for the year ending the 30th June, 1905.

Curtis's Botanical Magazine Fourth Series, Vol. I, Nos. 11 and 12, edited by Sir William T. Thistleton-Dyer, K.C.M.G., etc.

The *Agricultural News*, Vol. IV, Nos. 89, 90, 91, and 92 ; and the West Indian Bulletin, Vol. VI, No 3., issued by the High Commissioner of Agriculture, Jamaica, West Indies.

The *Indian Textile Journal*, Vol. XVI, No. 183.

The *Gardener's Chronicle*, Vol. XXXVIII, Nos. 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, and 992. Purchased.

The following catalogues :—

Messrs. Sutton & Sons, General List for 1906.

,, Damann & Co., Italy, General List.

,, J. C. Schmidt, Erfurt, General List.

Plants issued.—The following plants were sent out during December :—

To J. Cameron, Esq., F.L.S., Superintendent, Government Gardens and Parks, Mysore.

63 ornamental plants.

To Messrs. Moonisawmy & Sons, Lal Bagh, Bangalore.

54 ornamental plants.

Seeds and Plants Received.—The following seeds and plants were presented to the Gardens during August :—

From the Director, Royal Botanic Gardens, Kew.

1 Adenocalyma nitidum.
1 Bignonia speciosa.
1 Blakea trinervia.
1 Cæsalpinia melanocarpa.
1 Chamædorea corallina.
1 Chrysophyllum cerasiferum.
1 Citrus abufura.
3 „ medica var. Mitford's lemon.
3 Coffea Arabica var. Costa Rica.
3 „ robusta.
3 „ sp. Angola.
1 „ „ Uganda.
1 Cola vera.
1 Aphelandra nitens.
1 Codiæum Laingii.
1 Cryptostegia Madagascariensis.
1 Dracæna Sanderiana.
1 Erythrochiton Brasiliensis.
1 Scutellaria mociniana.
1 Honckenya ficifolia.
1 Licuala grandis.
1 Macadamia ternifolia.
1 Myristica fragrans.
1 Pritchardia sp. British Guiana.
1 Ptychosperma elegans.
1 Sparmania Africana.
1 Tecoma Shirensis.
1 „ Smithii.
1 Thrinax elegans.
1 Vanilla pompona.

The above plants were received in a Wardian case and were brought out under the direct care of Mr L. E. Kirwan. They arrived in good condition, only one plant being found dead, *viz.*, Sparmania Africana.

From William Robert Guilfoyle, Esq., Director, Botanic Gardens, Melbourne.

15 packets of seeds, miscellaneous.

From the Director, Botanic Gardens, Santiago-de-la Vegas, Cuba.

59 packets of seeds, miscellaneous.

From Mrs. Gaitskell, Yercaud, Shevaroys.

1 packet of seeds of Asparagus plumosus.
1 clump of Pampas grass.

From the Director, Botanic Gardens, Braunschweig.

31 packets of seeds, miscellaneous.

New Members.—The following gentlemen were elected ordinary members of the Society during September :—

CLASS A.—A. R. Loftus Tottenham, Esq , I.C.S., and H. A. B. Vernon, Esq., I C.S.

CLASS B.—Mrs J. Carysfort Loch.

SUPERINTENDENT'S NOTES.

The Rhea Fibre Industry.—The following letter received from Herbert A. Carter, Esq., c/o Messrs A. E. Piggott, 47, King Street, Manchester, England, may be of interest to planters.

SIR,

I understand that you are in touch with the Bengal Rhea Syndicate, and with almost all the ramie planters in your country. Can you inform me what is the *largest quantity* of good quality ramie ribbons which they could deliver here *regularly per month*, and the *lowest price*. The difficulties of degumming and manufacturing ramie having been got over there is a large and paying trade to be done in ramie in England ; and on the Continent ; providing that planters will co-operate with Spinners by providing *regular* supplies at *reasonable prices*. It is argued here that paying £9/10 at Port of shipment would show a good profit for the grower, and enable the Spinner here to make a large and profitable market. If you can ascertain from some of your friends the information which I desire I shall esteem it a great favor, and it may if they will quote *their lowest price* result in *large and continuous orders for ribbons for them*—orders which would make it worth their while to grow ; but in quoting they must remember that the Spinner, and capitalist here will only move where the grower will co-operate to some extent with them, as they have their profit to make. If you can furnish me with the names and address of the planters quoting, I shall be glad.

Agave Fibres.—In continuation of the notes in the Proceedings of this Society for the fourth quarter, of 1904, giving the results of Aloe leaves tested by Todd's Fibre Machine the following report by Prof. Wyndham R. Dunstan, Director of the Imperial Institute, London, has been received through the Officiating Reporter on Economic Products to the Government of India :—

IMPERIAL INSTITUTE,

SIR, LONDON, *the 27th October, 1905.*

I beg to enclose for your information and for transmission to the Honorary Secretary of the Agri-Horticultural Society, Teynampett, Madras, a report on samples of Agave and Furcræa fibres forwarded by that Society to the Imperial Institute with a letter No. 130, dated the 2nd February, 1905.

I am,

SIR,

Your obedient Servant,

WYNDHAM R. DUNSTAN,

Director.

To

The Officiating Reporter on Economic Products
to the Government of India,
Indian Museum,
Calcutta.

IMPERIAL INSTITUTE.

Report on Six Samples of Fibre from Madras, by Professor Wyndham R. Dunstan, M.A., F.R.S., Director.

These samples of fibre were forwarded to the Imperial Institute by the Honorary Secretary of the Agri-Horticultural Society, Teynampett, Madras, with a letter dated the 2nd February, 1905, asking for a report on the quality and comparative strength of the fibres, and stating that the plants had been grown at Madras, Bangalore, and Chickmagalur in the Kadur District, that is, at sea-level and at 3,000 and 4,000 feet above the sea-level respectively.

The samples have been submitted to chemical and mechanical tests in the Scientific and Technical Department of the Imperial Institute, and have been referred to commercial experts for valuation. A description of the fibres and an account of the results of the investigation are given below :—

Sample No. 1. *Agave Americana.*

This sample was labelled "*Agave Americana* from Chickmagalur, Kadur," and consisted of about one pound of fibre which was of a dirty white colour, and had not been well cleaned and prepared, but still retained some adherent green matter. The material was rather weak and irregular in strength, and varied in length from 3 to 4 feet.

The results of the chemical examination of this sample are as follows :—

Moisture, per cent.	9·1
Ash ,, ,, ...	2·5
a-Hydrolysis, loss per cent.	19·8
b-Hydrolysis, ,, ,, ...	21·4
Acid purification, loss per cent.	5·7
Mercerisation ,, ,, ...	12·2
Nitration, gain per cent.	39·1
Cellulose, per cent.	71·4

From a comparison of these results with those obtained with other Indian specimens of Agave fibres which have been examined in the Scientific and Technical Department of the Imperial Institute (*see* table on page 75), it is evident that the present sample suffers considerable loss when boiled with dilute alkali (*a* and *b* hydrolysis). It is probable, however, that this loss is largely due to the extraction by the alkali of gummy matter which was not removed during the preparation of the material, since the greater part of the loss takes place during the first five minutes' boiling (*a*-hydrolysis) and the additional loss after an hour's boiling is comparatively small. It is probable that, if well prepared, the fibre would be of a good, durable

quality. The proportion of cellulose in the fibre is somewhat low, but this again is no doubt due to the presence of the impurities already mentioned.

The commercial experts reported that the fibre was worth about £24 to £25 per ton, but that, if well prepared and thoroughly cleaned, it would probably be worth from £26 to £28 per ton in the London market.

Sample No. 2. *Agave Americana.*

This sample was labelled "*Agave Americana* from A.-H. Society, Madras," and consisted of 14 ounces of fibre which had been badly prepared and incompletely cleaned, a good deal of green matter still remaining attached to it.

The material was of a brownish colour, of rather poor strength, and had a length of staple varying from 3 feet 9 inches to 4 feet 5 inches.

On chemical examination the following results were obtained:—

Moisture, per cent.	9·1
Ash ,, ...	3·4
a-Hydrolysis, loss per cent.	19·5
b-Hydrolysis ,, ,, ...	21·6
Acid purification. loss per cent.	4·5
Mercerisation ,, ,, ...	12·7
Nitration, gain per cent.	38·0
Cellulose, per cent.	72·5

It is seen from these figures that in its chemical behaviour and composition this fibre closely resembles sample 1, and the same conclusions may be drawn with regard to the quality of the product.

The commercial experts reported that the fibre was of inferior quality, had not been well cleaned, and was worth from £22 to £22 10*s.* per ton in the London market.

Sample No. 3. *Sisal Hemp.*

This sample was labelled "*Sisal Hemp* from A.-H. Society, Madras," and consisted of about 14 ounces of pale straw-coloured, lustrous fibre which had been well cleaned and was of fairly good but rather irregular strength. The length of staple varied from 3 feet 9 inches to 4 feet 3 inches.

On chemical examination the fibre furnished the following results:—

Moisture, per cent.	9·3
Ash ,, ...	1·5
a-Hydrolysis, loss per cent.	13·6
b-Hydrolysis ,, ,, ...	16·9
Acid purification, loss per cent.	2·9
Mercerisation ,, ,, ...	10·8
Nitration, gain, per cent.	33·1
Cellulose, per cent.	75·7

These figures show that the sample is of fairly good quality, although somewhat inferior to a specimen of Sisal Hemp from Saharanpur which has also been examined in the Scientific and Technical Department of the Imperial Institute (see table on page 75). This inferiority is shown particularly in the greater loss sustained on hydrolysis and in the lower percentage of cellulose, and is probably mainly due to the present sample not having been so well cleaned as that from Saharanpur.

The commercial experts reported that the fibre was fairly well cleaned, of medium length and fair colour, and worth from £29 to £30 per ton in the London market.

Sample No. 4. *Sisal Hemp.*

This sample was labelled "*Sisal Hemp* from Lal Bagh, Bangalore," and consisted of about 1¼ pounds of fibre resembling sample No. 3, but somewhat cleaner and rather coarser. The material was of good strength and had a length of staple 4½—5 feet.

The following are the results of the chemical examination of this sample :—

Moisture, per cent.	9·3
Ash ,, ,, ...	1·2
a-Hydrolysis, loss per cent.	11·4
b-Hydrolysis ,, ,, ...	16·0
Acid purification, loss per cent.	2·1
Mercerisation ,, ,, ...	8·4
Nitration, gain, per cent.	41·2
Cellulose, per cent.	77·6

These results show that this fibre resembles the preceding sample of *Sisal Hemp*, but is somewhat superior to it, especially in its richness in cellulose. It is, however, inferior to the sample from Saharanpur referred to above.

The commercial experts reported that the fibre was of good quality, length and colour, and had been fairly well cleaned but contained some hard, imperfectly prepared strands, and that it was worth £31—£32 per ton in the London market.

Sample No. 5. *Agave Vivipara.*

This sample was labelled "*Agave Vivipara* from A.-H. Society, Madras," and consisted of 11 ounces of lustrous, pale straw-coloured fibre which had been fairly well cleaned but still retained a small quantity of adherent green matter. The material was of rather poor strength and had a staple 2—2½ feet long.

On chemical examination it yielded the following results :—

Moisture, per cent.	9·9
Ash ,, ...	2·6
a-Hydrolysis, loss per cent.	16·3
b-Hydrolysis ,, ,, ...	18·7

Acid purification, loss per cent. ...	... 2·9
Mercerisation ,, ,, ...	... 10·9
Nitration, gain, per cent.	... 14·2
Cellulose, per cent.	... 75·2

These figures show that the fibre is of fair quality, but rather susceptible to the action of alkali. The greater part of the loss in weight on hydrolysis is sustained, however, during the first five minutes' boiling (*a*-hydrolysis), and appears to be due rather to the presence of gummy impurities which were not removed during the preparation of the material than to attack of the actual fibre substance. There can be no doubt that this product would be of good serviceable quality if more care were exercised in its preparation.

The commercial experts reported that the fibre was soft, of fair colour and fairly clean, but contained some coarse ends and hard imperfectly prepared strands. The value of the material was estimated at £22 to £23 per ton in the London market.

SAMPLE No. 6. *Mauritius Hemp.* (*Furcræa Gigantea*).

This sample was labelled "*Mauritius Hemp* from Lal Bagh, Bangalore," and consisted of about 1½ pounds of fibre which was of a pale greenish brown colour and had been very imperfectly prepared. The product was fairly strong and from 3 feet 6 inches to 4 feet 3 inches in length.

The results of the chemical examination are as follows :—

Moisture, per cent	... 9·3
Ash ,, ...	... 2·1
a-Hydrolysis, loss per cent ...	... 17·1
b-Hydrolysis ,, ,, ...	... 23·9
Acid purification, loss per cent ...	... 6·1
Mercerisation ,, ,, ...	.. 12·0
Nitration, gain per cent. ...	... 28·0
Cellulose, per cent.	... 70·3

On comparing these results with those furnished by another Indian sample of *Furcræa gigantea* examined in the Scientific and Technical Department of the Imperial Institute (*see* table below), it is apparent that the quality of the present sample is decidedly inferior. This is indicated by the greater losses sustained on hydrolysis and mercerisation, the smaller proportion of cellulose and the smaller increase of weight on nitration, and it is therefore probable that this sample would be less valuable and durable.

The commercial experts reported that the sample consisted of rather short and coarse fibre which was of a poor, dull colour, had not been well cleaned, and was worth £23 to £24 per ton in the London market.

The results obtained in the chemical investigation of these six samples were collected together in the following table, to which are

added for convenience of comparison the corresponding values given by other specimens of *Indian Agave* and *Furcræa* fibres :—

	Samples from the Agri-Horticultural Society.						Sample previously examined.		
	No. 1. Agave Americana from Chickmagalur.	No. 2. Agave Americana from Madras.	No. 3. Sisal Hemp from Madras.	No. 4. Sisal Hemp from Bangalore.	No. 5. Agave vivipara from Madras.	No. 6. Mauritius Hemp from Bangalore.	Agave sp. from India (No. 16260).	Sisal Hemp from India (No. 8327).	Furcræa gigantea from India.
Moisture, per cent.	9·1	9·1	9·3	9·3	9·9	9·3	9·7	9·1	9·8
Ash „	2·5	3·4	1·5	1·2	2·6	2·1	1·5	0·8	..
a-Hydrolysis, loss per cent. ..	19·8	19·5	13·6	11·4	16·3	17·1	9·8	8·6	12·3
b-Hydrolysis, „ „ ..	21·4	21·6	16·9	16·0	18·7	23·9	15·7	15·1	14·5
Acid purification, loss per cent. ..	5·7	4·5	2·9	2·1	2·9	6·1	2·4	1·6	1·9
Mercerisation, loss per cent. ..	12·2	12·7	10·8	8·4	10·9	12·0	7·1	12·3	11·4
Nitration, gain per cent. ..	39·1	38·0	33·1	41·2	14·2	28·0	34·0	37·5	40·6
Cellulose, per cent. ..	71·4	72·5	75·7	77·6	75·2	70·3	79·6	82·4	77·7

Experiments have been made with the object of ascertaining the comparative strength of these fibres. For this purpose, the breaking strain of single filbres (or filaments) of the material was determined, a large number of tests being made with each sample of fibre. A great variation was found in the strength of the individual fibres (or filaments) of any particular sample corresponding more or less with the variation in their diameter. On taking the average of the results in each case, the comparative strength of the samples was found to be as follows, the greatest strength observed, *viz.*, that of sample No. 4, being represented as 100 :—

		Comparative Strength
No. 4.	Sisal Hemp	100
No. 3.	„	87·5
No. 6.	Mauritius Hemp	81·0
No. 2.	Agave Americana...	62·7
No. 5.	Agave Vivipara	57 9
No. 1.	Agave Americana...	55·3

Conclusions.

The results of this investigation show that the fibres, although of fair, marketable quality could be considerably improved by the exercise of greater care in their preparation.

It was, unfortunately, impossible to ascertain the influence of the elevation at which the plants were grown, on the strength and quality of the fibre produced, since the variation in the degree to which the samples had been cleaned was so considerable as to

obscure the inherent quality of the actual fibre substance. In this connection, it is interesting to notice that the commercial experts state that the comparative market value of the various fibres of this class is very uncertain as most of them are very imperfectly cleaned, and that consequently the value is governed more by the condition of the fibre than by its specific qualities.

The 27th October, 1905. WYNDHAM R. DUNSTAN.

Araucaria excelsa.—The severely hot season of 1905, is probably the cause of the loss to the Society of a valuable specimen of *Araucaria excelsa*, the last of several which, judging from its size and general appearance, we may presume to have been planted during the time Dr. Wight was connected with the Society, *viz.*, 1835—1845. The Society's records give no information of their introduction.

The specimen under notice was growing by the main walk to the south-east of the ornamental tank. It measured 3 feet 1½ inches in girth 3 feet from the base, and was 39 feet in height; —by no means a bad specimen for Madras, considering the adverse conditions of climate and soil. Special care had apparently been taken when planting this tree. It was noted when uprooting the old stump that a hole had been prepared 4 feet deep and 3 feet in diameter, into which a mixture of sand and broken bricks had been placed. In spite of this careful preparation, very few roots had penetrated the mixture. They had, however, branched out in all directions, but there was no trace of their having penetrated the subsoil which is of clay.

In May last the plant first showed signs of suffering, and although special attention was given it in the form of copious supplies of water, it was of no avail as the tree gradually withered away.

L. E. KIRWAN,
Honorary Secretary.

Financial Statement from October to December, 1905.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
By Balance with Messrs. Spencer & Co., Ltd., on the 30th September, 1905 ..	2,694	1	8				To Salary of the Superintendent, Office and Garden Establishments	..	..	..	1,199	8	9
,, Do. of Petty Cash on hand on the 30th September, 1905.	200	0	0				,, Garden Coolies, Permanent ..	169	10	3			
				2,894	1	8	,, Do. Temporary ..	130	7	9			
,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0	,, Commission to the Superintendent for 3rd quarter, 1905 ..	..	..	..	300	2	0
,, Subscription from Members of A Class	441	0	0				,, Purchases of Seeds, Plants, Flowers, Fruit Trees, etc. ..	..	..	..	147	5	2
,, Subscription from Members of B Class	170	0	0				,, Charges recoverable ..	..	..	..	454	9	6
				611	0	0	,, Garden requisites, including Pots, manure, etc.	..	..	..	353	11	0
,, Government Grant for the month of September, 1905.. ..	250	0	0				,, Discount on Mofussil Cheques ..	0	8	0	144	3	0
,, Government Grant for the month of October, 1905	250	0	0				,, Petty charges, including Carriage hire, etc.	18	0	8			
,, Government Grant for the month of November, 1905	250	0	0				,, Sundries, including Oil, etc. ..	0	12	0			
				750	0	0	,, Packing materials, including Baskets, etc.	24	4	4			
,, Sale of Seeds, Plants, Flowers and Fruits, Trees, etc. ..											43	9	0
	2,091	1	9				,, Furniture and Plant account ..	..	..	..	52	7	8
							,, Books and Periodicals account ..	..	..	..	23	7	0
							,, Printing and Stationery account ..	..	..	..	122	3	0

,, Sale of Ichthemic guano ..	33	0	0				,, Postages, Stamps and Telegrams account	54	7	0		
				2,124	1	9	,, Advertisement charges account ..	27	11	6		
,, Interest on cashiers security @ 5% per annum received from Messrs. Arbuthnot & Co.	..	..	..	37	8	0	,, Garden expenses account ..	40	13	6		
											123	0 0
							,, Economic Research account ..	..	..	..	1	3 0
							,, Ichthemic guano account ..	..	..	..	56	4 0
							,, Out-door work Account ..	..	..	..	1,914	5 11
							,, Red Hills Water-supply account ..	..	..	..	128	12 5
							,, Interest received from Messrs. Arbuthnot & Co., and paid to Cashier	..	..	..	37	8 0
							,, Security of Cashier deposited with Messrs. Arbuthnot & Co. ..	..	..	..	750	0 0
							,, Balance of petty cash on hand on the 31st December, 1905 ..	200	0	0		
							,, Balance of general cash on hand with Messrs. Spencer & Co., Ltd., on the 31st December, 1905 ..	1,114	5	0	1,314	5 0
Total Rupees		..	..	7,166	11	5	Total Rupees ..	..	..	..	7,166	11 5

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 13*th January*, 1906.

L. E. KIRWAN,
Honorary Secretary.

Audited and found correct.
E. WOODS-SCAVEN,
Auditor.

N. SUBRAHMANYAM,
Honorary Treasurer.

PRINTED BY HIGGINBOTHAM & CO., MADRAS AND BANGALORE.

The Proceedings of the Annual General Meeting of the Members of the Agri-Horticultural Society of Madras for the year 1905-06, held on the 30th March, 1906, at 7 a.m.

The following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*in the Chair*).
Chas. Sowden, Esq.
G. Narayanasawmy Chetty, Esq.
The Hon'ble Sir Ralph Benson, *Kt.*
H. E. Houghton, Esq.
G. Houghton, Esq.
G. Srinivasa Charry, Esq.
P. F. Fyson, Esq.
W. A. Turner, Esq.
V. G. Lynn, Esq.
A. Read, Esq.
L. E. Kirwan, Esq., *Honorary Secretary.*

The Honorary Secretary presented his Report, and Mr. G. Narayanasawmy proposed and Mr. Sowden seconded, that it be adopted.—*Carried.*

THE HONORARY SECRETARY'S REPORT.

Government Grant.—The monthly grant of Rs. 250 and the extra grant of Rs. 1 000 have been received. A budget estimate for 1905-06 was submitted in July 1905, and the usual sum of Rs. 4,000 was sanctioned by Government.

The Committee desire to record their thanks to Government for their continued support.

Finance.—A reference to the Financial Statement will show that in spite of the adverse season the Society's Funds are in excess of those of previous years.

Financial Statement

Particulars of Receipts.	Amount.			Total.		
	Rs.	A	P.	Rs.	A.	P.
By Balance with Messrs. Binny & Co. on the 31st December, 1904.	893	11	10			
,, Balance of Petty Cash on hand on the 31st December, 1904 ..	200	0	0			
				1,093	11	10
,, Security of Cashier S. Thathacharry deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0
,, Subscriptions from Members of A Class	2,555	0	0			
,, Subscriptions from Members of B Class	593	0	0			
				3,148	0	0
,, Government Monthly Grant for the year 1905	3,000	0	0			
,, Government Flower Show Grant for the year 1905	500	0	0			
,, Government Extra Grant for the year 1905	500	0	0			
				4,000	0	0
,, Sales of Seeds, Plants, Flowers and Fruit Trees, etc. ..	7,025	3	3			
,, Sale of Ichthemic guano ..	107	0	0			
				7,132	3	3
,, Loan of Plants account ..	301	9	0			
,, Out-door work of laying out Gardens, etc.	3,292	0	0			
				3 593	9	0
,, Flower Show Admission Tickets, etc.	..	..	..	893	4	0
,, Interest on Cashier's Security @ 5 % per annum received from Messrs. Arbuthnot & Co. ..	..	..	..	37	8	0
Total Rupees..	..	..	..	20,648	4	1

Agri-Horticultural Society,
Madras,
Teynampett, 15*th January*, 1906.

L. E. KIRWAN,
Honorary Secretary.

for the year 1905.

Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.
To Salary of the Superintendent, Office and Garden Establishment	..	..	..	4,403	6	10
,, Garden Coolies, Permanent and Temporary	..	..	..	1,090	5	3
,, Purchases of Seeds, Plants, Flowers and Fruit Trees, etc. ..	..	..	..	3,332	9	1
,, Charges recoverable account ..	..	..	..	1,130	5	3
,, Out-door work account of Labour etc.	..	..	..	3,103	5	11
,, Travelling Expenses to Superintendent	..	..	..	247	11	0
,, Commission to Superintendent @ 2½ % on receipts ..	..	..	..	349	12	5
,, Garden requisites and Garden Expenses	..	..	..	982	9	11
,, Flower Show account ..	..	..	..	1,282	15	1
,, Red Hills Water-supply account..	..	..	..	432	4	8
,, House, Water and Lighting Taxes	..	..	..	64	0	10
,, Packing Materials account ..	93	12	6			
,, Petty Charges and Sundries account	79	2	6			
,, Postages, Stamps and Discount account	240	11	3			
,, Printing, Stationery, Books and Periodicals accounts ..	660	2	6			
				1,073	12	9
,, Advertisement charges account..	..	..	..	194	1	0
,, Furniture and Plant account ..	..	..	..	76	7	5
,, Audit fees account ..	..	..	..	100	0	0
,, Economic Research account ..	..	..	..	33	9	0
,, Building account	..	..	..	553	3	0
,, Ichthemic guano account ..	..	..	..	76	12	0
,, Security of Cashier deposited with Messrs. Arbuthnot & Co ..	..	..	..	750	0	0
,, Interest received from Messrs. Arbuthnot & Co. and paid to Cashier	..	..	..	37	8	0
,, Amount of Adjustment overdrawn from Messrs. Spencer & Co., Ld., during the year 1904..	..	..	..	19	3	8
,, Balance of Petty Cash on hand on the 31st December, 1905 ..	200	0	0			
,, Balance with Messrs. Spencer & Co., Ld., on the 31st December, 1905	1,114	5	0			
				1,314	5	0
Total Rupees..	..	..	..	20,648	4	1

Audited and found correct.

E. C. WOODS-SCAWEN,
Auditor.

N. SUBRAHMANYAM,
Honorary Treasurer.

Weather.—The weather during the year under review has again been most trying, the rainfall amounting to only 38·85 inches. This is better than the previous year's 22·53 inches but is still much below the average. The tabular statement given below shows the monthly rain report:—

Month.	Date on which rain fell.	Inches,Cents.
January ..	6th, 7th and 8th	1·59
February ..	22nd and 23rd	0·23
March ..	22nd, 26th and 31st	0·79
April ..	18th and 19th	0·78
May ..	14th	0·06
June ..	17th, 28th and 30th	0·62
July ..	1st, 8th, 11th, 16th, 20th, 30th and 31st ..	1·48
August ..	2nd, 3rd, 8th, 14th, 15th, 22nd, 23rd, 26th, 29th and 31st	2·06
September ..	2nd, 4th, 12th, 14th, 16th, 28th and 29th ..	2·30
October ..	5th, 17th, 20th and 21st	18·51
November ..	8th, 18th, 20th, 22nd, 25th and 30th ..	10·15
December ..	13th and 14th	0·28
	Total number of rainy days 75.	38·85

Water-supply.—Owing to the continued dry weather, the quantity of Red Hills water consumed is still extremely high, amounting in the aggregate to 32,84,894 gallons.

Table showing the amount of water consumed each month.

Months.	Ornamental Gardens.	Nursery Gardens.	Total.
January	202,300	75,900	278,200
February	385,700	5,000	390,700
March	162,300	95,200	257,500
April	381,500	111,300	492,800
May	286,800	94,400	381,200
June	210,000	75,000	285,000
July	316,300	50,000	366,300
August	166,200	35,200	201,400
September	185,100	92,400	279,500
October	171,600	21,100	192,700
November	32,400	20,000	52,400
December	49,200	59,900	109,100
Total gallons ..	25,49,400	7,35,400	32,84,800

Library.—This section has received the usual amount of attention. The following books and periodicals were obtained and arranged during the year :—

The *Gardeners Chronicle*, Vol. XXXVI.

The *Agricultural News*, Vol. III.

Washington Experiment Station Record, Vol. XV.

The *Queensland Agricultural Journal*, Vols. XIV and XV.

The *Indian Forester*, Vol. XXX.

The Journal of the Royal Horticultural Society, Vols. XXVII and XXVIII

The West Indian Bulletin, Vol. III.

The Agricultural Bulletin Straits and Federated Malay States, Vol. I.

The Agricultural Ledger of Indian Economic Products, Vol. XI.

Plantæ Javanicæ Pariores.—T. Horsfield.

The *Tropical Agriculturist.*

Odorographia, J. Akers Sawer, 2 Vols.

"The Cultivation and Preparation of Pará Rubber." By W. H. Johnson, F.L.S., Director of Agriculture, Gold Coast Colony.

"Hevea Brasiliensis or Pará Rubber": its Botany, Cultivation, Chemistry and Diseases. By Herbert Wright, F.L.S, Controller, Government Experiment Station, Peradeniya, Ceylon.

The Royal Colonial Institute Report.

The Report of the Missouri Botanical Gardens.

The American Year Book of Agriculture for 1905.

The Century Book of Gardening.

Exchanges.—During the year under review we have received numerous contributions of plants and seeds for experimental cultivation and in some cases have given plants and seeds in exchange. We take this opportunity of thanking the following correspondents for their generous donations :—

Antigua	...Curator, Botanic Gardens.
Bangalore	...Superintendent, Government Botanic Gardens, Col. P. H. Benson, I.M.S., Messrs. M. Moonsawmy & Sons and Messrs. Rudrappa & Sons.
Baroda	...Superintendent, State Gardens.
Berlin	...Director, Botanic Gardens.
Bobbili	...His Highness the Maharajah.
Braunschweig	...Director, Botanic Gardens.
British Honduras	...Curator, Botanic Gardens.
Buitenzorg (Java)	...Director, Botanic Gardens.
Calcutta	...Superintendent, Royal Botanic Gardens.
Cambridge	...Curator, Botanic Gardens.
Chittur	...R. C. C. Carr, Esq., I.C.S.
Congo	...The Vice-Governor-General.
Colombo	...The Secretary, Agri-Horticultural Society Ceylon.

Coimbatore	...E. Gadsden, Esq.
Ceylon	...Director, Royal Botanic Gardens.
Cuba	...C. F. Baker, Esq.
Dindigul	...J. Driver, Esq.
Dublin	...W. Burbridge, Esq., Trinity College.
Durban	...J. Medley Wood, Esq., A.L.S.
Edinburgh	...The Regius Keeper, Botanic Gardens.
Glasnevin	...Director, Royal Botanic Gardens.
Grenada	.. Curator. Botanic Gardens.
Gold Coast	...Curator, Botanic Gardens.
Kodaikanal	...C. Michie Smith, Esq.
Kew	...Director. Royal Botanic Gardens.
Kingstown (Jamaica).	William Fawcett, Esq.
Karlsruhe	.. Director, Botanic Gardens.
Lucknow	...Superintendent, Government Botanic Gardens.
Madras	...Mrs. Simpson; C. A. Mowbray, Esq.; C. A. Barber, Esq., Government Botanist; R. Greenall, Esq.; L. E. Kirwan, Esq.; M. R. Ramakrishna Iyer, Esq.; E. B. Powell, Esq.; C. Benson, Esq.; Rajah V. Mudukristna Yachandra Bahadur, and the Superintendent of Guindy Park.
Madagascar	...Director, Botanic Gardens.
Melbourne	...Director, Botanic Gardens.
Nagpur	...Superintendent, Municipal Public Gardens.
Ootacamund	...Curator, Government Botanic Gardens, and George Oakes, Esq.
Paris	...Director, Botanic Gardens.
Peradeniya	...Curator, Royal Botanic Gardens.
Pietermaritzburg	...T. R. Sim, Esq.
Pondicherry	...Henry Gaebele, Esq., and A. I. J. Achart, Esq.
Poona	...The Farm Superintendent.
Saharanpore	...The Economic Botanist, Government Botanic Gardens.
Saigon	...Director of Agriculture.
Sivaganga	...A. P. Millar, Esq.
St. Petersburg	...Director, Imperial Botanic Gardens.
Travancore	.. His Highness the Maharajah, and J. S. Sealy, Esq.
Trevandrum	...Director, Public Gardens.
Trinidad	.. Superintendent, Royal Botanic Gardens.
Yercaud	...Mrs. Gaitskell.
Zanzibar	..Director of Agriculture.

Flower-Show.—The 66th Annual Flower Show was held on the 25th February in the Nursery Gardens. The arrangements were slightly different to those of the previous year. In place of tents, tatties were for the most part erected. The change was an improvement in every way, the increased height and space and the better light being most noticeable.

His Excellency the Governor's Band was in attendance and played an excellent selection of music.

The Committee take this opportunity of thanking those gentlemen who undertook the onerous task of judging the various exhibits, and those gentlemen who so generously helped by lending tents, tables, etc , also the Commissioner of Police for his assistance, and the President of the Madras Municipality for having the roads watered in the vicinity of the gardens.

Correspondence.—The usual correspondence with Botanic and other Public Gardens has been maintained. Numerous enquiries have been made by Planters regarding Rubbers and Cottons and every endeavour has been made to answer their enquiries satisfactorily.

New Introductions.—

Sterculiaceæ	...Sterculia lurida.
	Cola vera.
Lineæ	...Linum sp.
Rutaceæ	...Citrus abufura.
	Do. medica var. Mitford's Lemon.
	Erythrochiton Brasiliensis.
Leguminosæ	...Peltophorum dasyrachium.
	Albizzia Richardiana.
	Cæsalpinia melanocarpa.
Melastomaceæ	...Pleroma candida.
	Blakea trinervia.
Passifloreæ	...Passiflora suberosa.
Begoniaceæ	...Begonia sp
Rubiaceæ	...Ixora Duffii.
	Morinda bractescens.
	Coffea arabica var. Costa Rica.
	Do. robusta.
	Do. sp. Angola.
	Do. sp. Uganda.
Sapotaceæ	...Chrysophyllum cerasiferum.
	Lacuma mammosa.
Ebenaceæ	...Diospyros microphylla.
Oleaceæ	...Jasminum hirsutum.
Apocynaceæ	...Allamanda grandiflora.
	Stemnadinia bella.
Asclepiadeæ	...Cryptostegia Madagascariensis.
Bignoniaceæ	...Jacaranda sp.
	Bignonia sp.
	Adenocalyma nitidum.
Acanthaceæ	...Aphelandra nitens.
Labiateæ	...Salvia grandiflora.
	Scutellaria mociniana.
Aristolochiaceæ	...Aristolochia fimbriata.
Myristiceæ	...Myristica attenuata.
Euphorbiaceæ	...Codiæum Laingii.
Mrticaceæ	...Ficus elastica var.
Cycadaceæ	...Zamia integrifolia

Orchideæ	..Vanda teres.
	Do. spathulata
	Cypripedium spicerianum.
	Do. euryale.
	Do. Druyrii.
	Dendrobium Parishii.
	Do. moschatum.
	Calanthe Veitchii.
	Do. sp.
	Peristeria elata.
	Vanilla pompona.
Scitamineæ	...Costus sp.
Bromeliaceæ	...Tillandsia Lindeni.
	Pine-apples, Kew varieties.
	Do. Mauritius varieties.
Irideæ	...Lapeyroúsia corymbosa.
	Iris Kampferii.
Amaryllideæ	..Hæmanthus Cinnabaricum.
	Furcræa Lindeni.
	Do. pubescens.
	Agave vittata.
Liliaceæ	..Scilla sp.
	Lilium Nilgiriensis.
	Dracæna Sanderiana.
Commelinaceæ	...Tradescantia subaspera.
	Do. Reginæ.
Palmaceæ	...Calamus Roxburghii
	Maximiliana Panamænsis.
	Cocos chrysophylla.
	Sabal umbraculifera.
	Licuala peltata.
	Do. do.
	Arenga sp.
	Martenezia caryctifolia.
	Cocos Weddeliana.
	Washingtonia Sonoreæ.
	Latania Commersonii.
	Calamus
	Chamædorea corallina.
	Licuala grandis.
	Pritchardia sp.
	Thrinax elegans.
Cyclanthaceæ	...Carludovica sp.
Filiciæ	...Lastrea lepida.
	Adiantum Lagrandii.
	Do Ludimanianum.
	Davallia epiphylla.
	Acrostichum Wilkesianum.
	Davallia sp.
	Do. plumosa.
	Pteris sp.
	Polypodium irioides var. lobatum.
	Nephrolepis davallioides var. plumosa.
	Polypodium sp.

Nursery Stock.—Work in this section has been going steadily forward and we have now on hand a large stock of trees, shrubs and pot plants.

	In pots.	*In pans and seed beds.*
Climbers	1,470	570
Flowering shrubs and foliage plants	6,301	6,732
Bulbs	1,164	...
Roses ...	99	...
Conservatory plants ...	3,092	204
Economic plants .	11,024	...
Ferns	1,669	...
Palms	2,849	2,426

Seeds, plants, etc., distributed to members, Botanic Gardens, and sold during 1905.

NAME.	Members.	Botanic Gardens.	Sold.	TOTAL.
Bulbs	28	9	28	65
Caladiums	164	1	78	243
Cannas	246	224	740	1,210
Casuarina plants	1,000	..	5,206	6,206
Climbers	354	53	306	713
Crotons	339	48	173	560
Economic plants	314	60	6,038	6,412
Do. seeds in packets ..	2	4	150	156
Do. do. in weight ..	10 ozs.	5 lbs.	81½ lbs.	87 lbs. 2 ozs.
Ferns	411	44	198	653
Flower seeds in packets ..	2,776	48	1,472	4,296
Do. do. in tins ..	2	..	2	4
Guinea grass roots	..	..	500	500
Hurrialee do.	200 lbs.	..	51,500 lbs.	51,700 lbs.
Do. seeds.	29½ lbs.	..	15 lbs. 3 ozs.	45 lbs.
Indigenous seeds in packets ..	92	98	219	409
Do. do. in weight ..	3 ozs.	..	15 lbs.	15 lbs. 3 ozs.
Inga dulcis seeds	102 lbs.	..	569 lbs. 10 ozs.	671 lbs. 10 ozs.
Japanese Fern Balls ..	5	..	55	60
Lucerne seeds	12 lbs. 6 ozs.	..	25 lbs.	37 lbs. 6 ozs.
Mango grafts, Madras ..	..	5	45	50
Do. do. Imported ..	8	3	113	124
Miscellaneous plants ..	2,117	375	6,981	9,473
Palms	475	55	763	1,293
Pará rubber seed	..	..	5,050	5,050
Paspalum dilatatum roots ..	550	..	..	550
Do. seed	1 oz.	..	5 lbs.	5 lbs. 1 oz.
Pineapples	..	..	57	57
Rose plants	7	..	143	150
Vegetable seeds in packets ..	781	..	596	1,377
Do. do in weight ..	145 lbs. 10½ ozs.	..	97 lbs. 8¼ ozs.	243 lbs. 2¾ ozs.
Cut flowers, buttonholes, boquets, sprays, wreaths, crosses, etc. ..	..	..	..	1,068

PROGRESS AND CONDITION OF THE GARDEN.

Experimental Gardens.—*Agave.*—The Agave plot suffered considerably during the hot weather and hand-watering had to be resorted to. This proves conclusively that Sisal is not so hardy as Agave Americana syn. *Vera Cruz*, as the latter did not require watering during the whole of the drought.

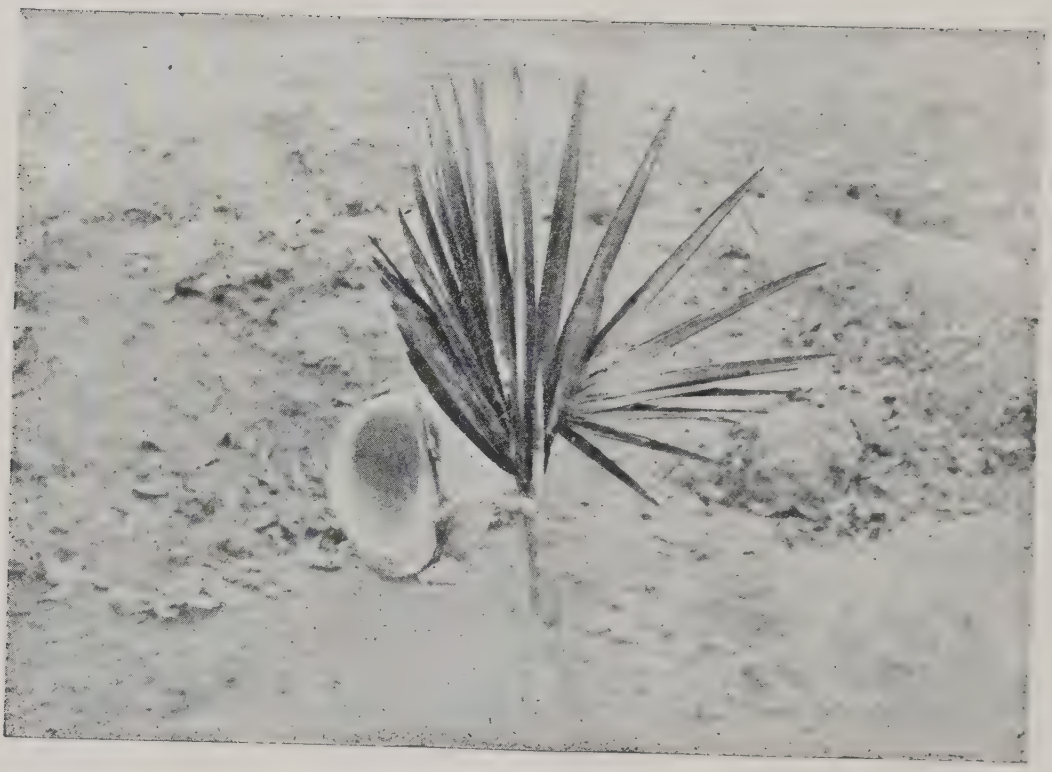
The necessity of thorough drainage is well illustrated by the appearance of the plants occupying this plot of ground. The plot is one acre in extent and contains approximately 680 plants. The ground is hollow in the centre. the difference, however, in the levels not exceeding one foot. It is noticed that the plants occupying the low-lying ground are much stunted, in some instances their growth being only half that of those on the higher levels. This plot was planted in 1900 and the average length of the leaves of the larger plants is 4 feet 4 inches. Fibre was prepared from leaves cut from these plants and forwarded to the Imperial Institute for analysis and report. An interesting and instructive report was received and appeared in detail in the 4th Quarterly Report for 1905.

Cotton.—Attention is being given to cotton, about half an acre of land having been put down with cottons of various sorts. These have been referred to in the 1st, 2nd and 3rd Quarterly Proceedings for 1905. Results will be recorded as soon as available.

Nitro-Bacteria.—In the 2nd Quarters Proceedings reference was made to the introduction of a new fertiliser of American origin, *viz.*, Nitro-bacteria. Experiments were carried out with this bacteria upon various garden plants but owing to the hot weather setting in earlier than usual the experiments were not successful. A second consignment was received through Messrs. Oakes & Co. at the latter end of 1905, and experimental plots of lucerne, peas and beans were put down and treated with this bacteria. No results are yet to hand, but the plants in the plots look very healthy.

Ornamental Gardens.—Considering the dryness of the season, the gardens were kept throughout the year in a very satisfactory manner.

Corypha umbraculifera.—Talipot Palm. Two very handsome but small specimens of this palm growing on the Western side of the Gardens near the Water-tower are now sending up their inflorescences. This premature flowering is probably due to the drought, as is also the loss of a specimen of Cuban Mahogany and the only specimen of *Araucaria excelsa* in the Gardens. Both of these have been noticed in the Proceedings for the 4th Quarter of 1905.



Lodoicea Seychellarum.—Coco de mer—Double or Sea Cocoa-nut. A full description has already appeared in the Proceedings for the 3rd Quarter and the photograph now reproduced is interesting as showing the development and growth of this curious palm.

Succulents.—A new mound has been added to the existing one for the accommodation of the many new and interesting specimens of this class which have been received during the past four years.

Lily Tank.—The Vizianagram tank having silted up, advantage was taken of the hot weather to clean and deepen it.

Boundary Wall.—The Government were petitioned in July complete the boundary wall, as owing to the dense growth of large trees inside the garden boundary and also to the heavy shade caused by the roadside trees it is impossible to keep the hedges in anything like good condition, the result being that the Gardens in this part present an unkempt appearance owing to there being no protection against trespassers or cattle.

Government passed the following:—The construction of a boundary wall round the Gardens along the Mount Road and the Cathedral Road at the cost of Government is approved.

The Committee desire to place on record their thanks to Government for their promise.

Orders have been placed with Messrs. Oakes & Co. for a light iron arch-way bearing the name of the Society and the date of its establishment. This will be placed in position over the main gate.

Honorary Secretaries.—The thanks of the Committee are recorded for the services of the three gentlemen who undertook the duties of Honorary Secretary during the year. Mr. L. E. Kirwan held the appointment from the 1st January to the 23rd March, 1905; Col. P. H. Benson, I.M.S., from the 24th March to the 26th July, 1905; Mr. P. F. Fyson, F.L.S., from the 27th July to the 16th September, 1905; and finally, Mr. L. E. Kirwan who resumed office on the 15th November.

Resignations.—Sixteen members resigned during the year. Eight members were placed on the absentee list and there were two deaths.

Subscribing Members.—Eighteen A Class and twenty-one B Class members have joined during the year, making a total number of members on the roll on the 31st December of 180,

viz., A Class 112, B Class 55, one Life member, 9 Extraordinary members and 3 Honorary members.

Resolutions.—The following Resolutions were passed :-

1. That addition to rule 8 proposed at the Committee Meeting on the 5th March, 1906, be confirmed.

2. Mr. Sowden proposed and Mr. Kirwan seconded a vote of thanks to the Chairman, which was carried unanimously.

New Committee.—The following gentlemen were elected by ballot as members of the Committee for the ensuing year, the Hon'ble Mr. Castlestuart Stuart remaining an *ex-officio* member.

The Hon'ble Mr. Justice H. T. Boddam.
The Hon'ble Justice Sir R. S. Benson, *Kt.*, I.C.S.
C. A. Barber, Esq.
P. F. Fyson, Esq.
V. G. Lynn, Esq.
The Hon'ble Mr. C. J. Weir, I.C.S.
R. T. Menzies, Esq.
N. Subrahmanyam, Esq., *Honorary, Treasurer.*
L. E. Kirwan, Esq., *Honorary Secretary.*
H. E. Houghton, Esq.
G. Narayanasawmy Chetty, Esq.
A. L. Hannay, Esq.
Chas. Sowden, Esq.

Members of the Society on the 31st December, 1904.

President.

His Excellency The Right Hon'ble Lord Ampthill, G.C.I.E.

Honorary Members.

L. A. Bernays, Esq.
General J. P. Ferrier.
Sir J. D. Hooker, C.B., etc.

Extraordinary Members.

Bidie, Surgeon Genl. G., C.I.E.
Cox, Colonel H. W. H.
Duff, Sir M. E. Grant, G.C.S.I.
Lawson, Sir Charles A.
Steavenson, Joseph, Esq.
Whiteside, W. S., Esq.
West, Henry C., Esq.
Moore, Col. the Hon'ble Sir George.
Walker, J. L., Esq.

Life Member.

Houghton, H. E., Esq., F.R.H.S., F.R.B.S.

Subscribing Members, A Class.

1. Adam, John, Esq.
2. Atkinson, the Hon. Mr. J. N., I.C.S.
3. Arbuthnot, P.B., Esq.
4. Aitchinson, W., Esq.
5. Allen, Seely A., Esq.
6. Benson, the Hon'ble Justice Sir R. S., *Kt.*, I.C.S.
7. Boddam, the Hon'ble Mr. Justice H. T.

8. Bradley, the Hon'ble Mr. H., C.S.I., I.C.S.
9. Buckley, L. E., Esq., I C.S.
10. Bourne, the Hon'ble Dr. A. G., F.R.S.
11. Banerji, A. R., Esq., I.C.S.
12. Barber, C. A., Esq., F.L.S.
13. Breeden, Rev. J.
14. Bannerman, Lt -Col W. B., I.M.S.
15. Benson, Col. P. H., I.M.S
16. Bickley, Esq . Geo. W.
17. Cowie, Esq . D. W. G , I.C.S.
18. Clark, Fred. Scott, Esq.
19. Clover, Lt. Austin L., R.F.A.
20. Cowdy, Rev. S J.
21. Conran, Dr. C. E.
22. Campbell, Walker E., Esq.
23. Coster, R. J., Esq.
24. Desikachari, the Hon'ble Sir V., *Kt.*
25. Dance, Mrs.
26. Deane, Mrs. C. F.
27. Driver, J., Esq.
28. Elliot, Major R H., I M.S.
29 Formby, Lt.-Col. R. F. R.
30. Faulkoner, Capt. S. E., I.S.M.D.
31. Greenall, R., Esq.
32. Gaitskell, Mrs.
33. Gajapathi, Rajah Kripamaya Deb Ananga Bheema Kesari.
34. Hammick, The Hon'ble Mr. M., C.I.E., I.C.S.
35. Hannay, A. L., Esq., I.C.S.
36. Henderson, Miss A. E.
37. Hatchell, D. G., Esq
38. Hakim, Lt -Col. H. M., I.M.S.
39. Hardaker, R. G , Esq.
40. Jones, R. Ll., Esq.
41. Jackson, G. H. B., Esq., I.C.S.
42. Janakiram Panthuloo, K., Esq.
43. Kumara Rajah of Challapalle
44. Lynn, V. G., Esq.
45. Lopes, The Very Revd. J., The Vicar-General of Mylapore.
46. Loftus-Tottenham, A. R., Esq., I.C.S.
47. Maharajah of Bobbili, H. H., C I.E.
48. Menzies, R. T., Esq
49. Miller, A. P., Esq.
50. Muddukrishna Yachandra Bahadur, Rajah
51. Maharajah of Travancore, H. H , G C.M.G.
52. Malcolm, Bernard, Esq.
53. Mullaly, W., Esq.
54. Merwanjee Erana Sorabjee A , Esq.
55. Maharanee Lady Gajapathi Rao Garu, H. H. Sri.
56. Nair, Dr. T. M., M.D.
57. Napier, A. S., Esq.
58. Norton, Eardley J., Esq.
59. Nelson, Horace A., Esq.
60. Keess, Dr. W.
61. Narayan Row, D. L., Esq.

62. Oakes, A. W. D., Esq.
63. Oakes, W. H., Esq.
64. Ormerod, H., Esq.
65. Orr, Sutherland, Esq.
66. Pinhey, A. F., Esq., I.C.S.
67. Pollard, Revd. C.
68. Palmer, E. B., Esq.
69. Romilly, George, Esq.
70. Rajah of Kuruppan.
71. Ramanoojam Chetty, C., Esq.
72. Rajah of Púnganoor.
73. Roslirg, A. W., Esq.
74. Ross, C. E., Esq.
75. Roebuck, E. H., Esq.
76. Read, Archibald, Esq.
77. Richards, Thomas, Esq.
78. Rutherford, E. W., Esq.
79. Sri Venkata Jugga Row Garu.
80. Stuart, The Hon'ble Mr. A. E. Castlestuart.
81. Sabapathy Iyah, C., Esq.
82. Scott, E., Esq., I.C.S.
83. Sim, The Hon'ble Mr. H. A., C.I.E., I.C.S.
84. Smith, C. Michie, Esq.
85. Smith, P. Bosworth, Esq.
86. Sowden, Chas., Esq.
87. Straker, C. H., Esq.
88. Subrahmanyam, N., Dewan Bahadur.
89. Smith, W. D., Esq.
90. Srinivasaraghava Iyer, L., Esq.
91. Subba Naidu, A., Esq.
92. Thompson, H. J., Esq.
93. Twigg, Mrs.
94. Thurston, Dr. Edgar.
95. Turner, W. A., Esq.
96. Venkataramadoss Naidu, S., Esq.
97. Vincent, J R., Esq.
98. Venkatachalam, M., Esq.
99. Vernon, H. A. B., Esq. I C.S.
100. Whitehead, The Right Rev. H., D.D., Lord Bishop.
101. Wallis, The Hon'ble Mr J. E. P.
102. White, the Hon'ble Chief Justice Sir Charles Arnold, *Kt.*
103. Weir, The Hon'ble Mr. C. J., I.C.S.
104. Wickham, H. C., Esq.
105. Yates, J. A., Esq.
106. Yorke, The Hon'ble Mr. A. J.
107. Zemindar of Ettiapuram.
108. Zemindar of Oothukuli.
109. Zemindar of Polavaram.

List of Subscribing Members, B Class.

1. Ager, B., Esq.
2. Avadaya Pillai, B. E., Esq.
3. Breithaupt, Ed. M., Esq.
4. Coleridge, F. A., I.C S., Esq.
5. Chambers, G. A., Esq.

6. Costello, P. A., Esq.
7. Cayley, Bernard, Esq.
8. Carruthers, Lt.-Col. H. St. C., I.M.S.
9. Chandhuri, Mrs. E. L.
10. Desikachariar, T., Esq.
11. Davy, H. F., Esq.
12. Dady, E., Esq.
13. Ethirajooloo Naidu, P., Esq.
14. Fyson, P. F., F.L.S., Esq.
15. Giffard, Major G. G., I.M.S.
16. Golden, S., Esq.
17. Hoare, W. E., Esq.
18. Hasking, J., Esq.
19. Josselyn, J., Esq.
20. Kirwan, L. E., Esq., F.R.H.S.
21. Khirod Chandra Roy, Esq.
22. Lakshmivaraham Iyer, C. R., Esq
23. Lawson, A. E., Esq.
24. Leger, W. D. St., Esq.
25. Large, J. C., Esq.
26. Loane, S. J., Esq.
27. Loch, Mrs. J. Carysfort.
28. Maitland, Lt.-Col. J., I.M.S.
29. Macrae, A. W., Esq.
30. Macgregor, Miss H.
31. Mildred, C., Esq.
32. Macphail, Rev. E. M.
33. Morres, W., Esq.
34. Macnamara, Rev. Thomas F.
35. Nallasami Pillai, J. M., Esq.
36. Natesa Iyer, S., Esq.
37. Narayanasamy Chetty, G., Esq.
38. Narasimha Row Panthulu, V., Esq.
39. Potts, Rev. R. U.
40. Playfair, H McLeod, Esq.
41 Parbury, Lient E., R.A.
42. Ramanoojam Chetty. Tota R. V., Esq.
43. Rajah Iyer, A. K., Esq.
44. Sivasawmy Iyer, the Hon'ble Mr. P. S.
45. Subba Row, M. K., Esq.
46. Sundaresa Row, M., Esq.
47. Srinivasa Pillai, K. S., Esq.
48 Smith J. G , Esq.
49. Simpson, Jas. F., Esq.
50 Syed Altaf Hosain, Esq.
51. Thompson, the Hon'ble Sir J., K.C.S.I., I.C.S
52. Tod, W. H., Esq.
53. VanGeyzel, Lt.-Col. J. L., I.M.S.
54. Vaughan, N. J., Esq.
55. White, W. E.. Esq.

Proceedings of the Agri-Horticultural Society of Madras for the 1st Quarter ending the 31st March, 1906.

At a Committee Meeting held on the 8th January, the following gentlemen were present:—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
The Hon'ble Mr. H. Bradley, C.S.I., I.C.S.
A. L. Hannay, Esq., I.C.S.
V. G. Lynn, Esq.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
L. E. Kirwan, Esq. (*Honorary Secretary*).
Dewan Bahadur N. Subrahmanyam (*Honorary Treasurer*).

Resolutions.—The following Resolutions were passed:—

1. That the decorations for the Royal Visit be limited to decorating the main gate.

2. That the Mahogany tree by No. I Planthouse, which died during the hot season of 1905, be sold.

3. That Ponnoosawmi Achary's letter be recorded.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during January:—

The *Indian Textile Journal*, Vol. XVI, No. 184.

The Report on the Government Botanical Gardens, Saharanpur and Mussoorie, for the year ending the 31st March, 1905.

The *Tropical Agriculturist* and *Magazine of the Ceylon Agricultural Society*, Vol. XXV, No. X, edited by J. C. Wallis, Esq.

The *Queensland Agricultural Journal*, Vol. XVI, Part I, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The Bulletin of the Department of Agriculture, Jamaica, Vol. III, Part 6, edited by William Fawcett, Esq., B.Sc., F.L.S.

Curtis's Botanical Magazine, Fourth series, Vol. II, No. 13, edited by Sir William T. Thistleton Dyer, K.C.M.G., etc.

The Bulletin of Miscellaneous information of the Royal Botanic Gardens, Kew, 1905.

The Univesitry of California Publications, Bulletin No. 165, Asparagus and Asparagus Rust in California, by Ralph E. Smith, Esq.

The Bulletin of the Imperial Institute, Vol. III, No. 3, edited by Prof. W. R. Dunstan, F.R.S.

The *Indian Forester*, Vol. XXXII, No. 1, edited by E. P. Stebbing, Esq., F.L.S., F.Z.S., F.C.S.

The *Agricultural News*, Vol. IV, Nos. 93 and 94, and Bulletin of the Imperial Department of Agriculture, No. 38, cultivation and curing of Tobacco, issued by the High Commissioner of Agriculture for the West Indies.

Agricultural Bulletin of the Straits and Federated Malay States, Vol. IV, No. 10, edited by H. N. Ridley, Esq., M.A., F.L.S.

Bulletin Vol. III, Part 12, of the Department of Agriculture, West Indies, edited by William Fawcett, Esq., B.SC., F.L.S.

Experimental Station Record, Vol. XVI, No. 12 and Vol. XVII, Nos. 1 and 2, issued by the United States Department of Agriculture.

The *Gardeners Chronicle*, Vol. XXXIX, Nos. 993, 994, 995 and 996. Purchased.

The *Agricultural Journal of India*, Vol. I, Part I, issued by the Agricultural Research Institute, Pusa.

The Annual Report on the Gardens of His Highness the Maharana Fatah Singhji Bahadur, G.C.S.I., of Udaipur, Meywar, for the year 1904-05.

A Paper by S. Chas. Philipps, M.S.C I., on the use of wood Pulp for Paper-making.

The Records of the Geological Survey of India, Vol. XXXII, Part 4.

The Flora of the Presidency of Bombay, Vol. II, Part II, by Theodore Cooke, C.I.E.

Die Orchideen Von Ambon Von J. J. Smith, Assistant Am. Herbar Zu Buitenzorg.

The Report on the Working of the Department of Agriculture of the Central Provinces during the year ending 31st March, 1905.

The Report on the Management of the Provincial and District Gardens in the Central Provinces for the year 1904-05.

The Report on the Department of Agriculture, Bombay Presidency, for the year 1904-05.

Exchange seed lists from the following :—

Missouri Botanical Gardens, St. Louis, M. O.
Botanic Gardens, Braunschweig.
Do. Zurich.
Imperial Botanic Gardens and Museum, Berlin.
Botanic Gardens, Antibes.
Museum, Paris.

Catalogues from the following :—

Messrs. Barr & Sons, Seed guide.
Do. Damman & Co., Bulb and Seed lists.
Do. Vilmorin-Andrieux & Co., General wholesale list.

Messrs. James Veitch & Sons, Seeds.
Do. J. C. Schmidt & Sons, Trade Seed list.
Do. do. Novelties for 1906.
Do. William Bull & Sons, Seeds, etc.

Plants issued.—The following plants were sent out during January :—

To the Superintendent, Guindy Park.
1 doz. Salvia splendens.
1 doz. „ patens.
1 Datura metel.

To Messrs. Rudrappa & Sons, Bangalore.
17 plants, a miscellaneous collection.

To the Superintendent, Victoria Gardens, Bombay.
127 plants, a miscellaneous collection.

Plants and Seeds received.—The following plants and seeds were presented to the Gardens during January :—

From the Superintendent, Guindy Park.
1 doz. Kopsia fruticosa.
1 pan of Marigold seedlings.
1 „ Helianthus argyrophyllus.

From J. Cameron, Esq., F.L.S., Superintendent, Lal Bagh Gardens, Bangalore.
2 packets of seeds of Ipomæa sp.

From Mrs. N. Subrahmanyam, The Luz, Mylapore.
11 Croton cuttings.

From the Curator, Royal Botanic Gardens, Calcutta.
1 lb. of seeds of Phœnix rupicola.
½ „ „ Trachycarpa martiana.

From the Curator, Botanic Station, Seychelles.
1 packet of seeds of Hephrasperma Van Houtiana.

From the Director, Public Gardens, Trivandrum, Travancore.
1 packet of seeds of Thrinax sp.

From Dr. D. Thomatis, Cairns, North Queensland.
1 packet of seeds of Gold Leaf tobacco.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—
Class A.—G. A. Paterson, Esq. and P. H. Furnivall, Esq.
Class B.—G. Srinivasachari, Esq.

COMMITTEE MEETING.

At a Committee Meeting held in the Gardens on the 5th February, 1906, the following gentlemen were present : —

The Hon'ble Mr. Justice H. T. Boddam (*in the Chair*).
C. A. Barber, Esq., F.L.S.
N. Subrahmanyam, Esq., *Honorary Treasurer.*
V. G. Lynn, Esq.
J. G. Smith, Esq.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
G. Narayanasawmy Chetty, Esq.
P. F. Fyson, F.L.S.
L. E. Kirwan, Esq., *Honorary Secretary.*

Resolutions.—The following Resolutions were passed : —

1. That Mr. Cavanagh be allowed to undertake the supervision of the High Court Gardens, subject to his work in the Society's Gardens being properly done.

2. That the appointment of Auditor in place of the late Mr. Thomas Cronan be offered to Mr. Wood-Scawen.

3. That Mr. Narayanasawmy's letter be recorded with thanks and that his special prize of a silver medal be awarded to the best flowering plant in the Show.

4. That Messrs. Oakes & Co.'s estimate for erecting, making and fixing the Society's name in iron work over the main gate be accepted.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during February :—

The *Indian Textile Journal*, Vol. XVI, No. 185.

The *Agricultural News*, Vol. V, Nos. 97 and 98, issued by the Imperial Commissioner of Agriculture, West Indies.

The *Gardeners Chronicle*, Vol. XXXIX, Nos. 996, 997, 998 and 999. Purchased.

Curtis's Botanical Magazine, Vol. II, No 14, edited by Sir William T. Thistleton Dyer, K.C.M.G., etc.

The *Tropical Agriculturist and Magazine of the Ceylon Agricultural Society*, edited by J. C. Willis, Esq., Vol. XXVI, No. 1.

The *Agricultural Bulletin* of the Straits and Federated Malay States, edited by H. N. Ridley, Esq., M.A., F.L.S.

The Bulletin of Miscellaneous information, additional series VI, issued by the Director, Royal Botanic Gardens, Kew.

The *Indian Forester*, Vol. XXXII, No. 2, edited by E. P. Stebbing, Esq., F.L.S., etc.

The *Queensland Agricultural Journal*. Vol. XVI, Part 4, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The *Quarterly Journal*, Vol. I, No. 1, issued by the Institute of Commercial Research in the Tropics, Liverpool University.

The Annual Administration Report of the Forest Department of the Madras Presidency for the year ending 30th June, 1905.

The following publications of the Central Agricultural Committee, Madras :—

No. 6. Hints for Agricultural Associations.

No. 7. Carolina Paddy.

No. 8. Agricultural Associations in India.

Records of the Geological Survey of India, Vol. XXXIII, Part I, 1906.

Experimental Station Record, Vol. XVII, No. 2 and Report No. 67.—Foreign Markets for American Agricultural products by Frank H. Hitchcock, Esq., published by the U. S. Department of Agriculture, Washington.

Bulletin Vol. III, No. 55. The Great Millet or Sorghum in Madras, by C. Benson, Esq., M.R.A.C., published by the Department of Agriculture, Madras.

Plants issued.—The following plants were sent out during February :—

To R. L. Proudlock, Esq., Curator, Government Botanic Gardens, Ootacamund.

6 Landolphia Florida.

6 „ Kirkii.

2 Coffea Zanquebariæ.

1 „ robusta.

1 „ Arabica—Costa Rica.

1 „ sp. from Angola.

6 Berrya ammonilla.

1 Citrus medica Var. Mitford's lemon.

4 White Antigonon.

1 Graft sapodilla.

1 Vanilla Pompona.

To Major F. W. Dawson, Director, Public Gardens, Trivandrum.

84 plants, a miscellaneous collection.

Seeds received.—The following seeds were presented to the Gardens during February :—

From the Superintendent, State Gardens, Baroda.

1 packet of seeds of Hyphæne thebiaca.

From H. N. Ridley, Esq., Director, Botanic Gardens, Singapore.

18 packets of Palm seeds.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

Class A.—Robert P. Gill, Esq.

Class B.—G. Srinivasa Chari, Esq., W. M. Dorasawmy Mudaliar, Esq., G. Houghton, Esq., and K. S. Ramachandra Iyer, Esq.

COMMITTEE MEETING.

At a Committee Meeting held on the 5th March, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam, *Chairman.*
The Hon. Justice Sir R. S. Benson, *Kt.*, I.C.S.
A. L. Hannay, Esq., I.C.S.
V. G. Lynn, Esq.
H. E. Houghton, Esq., F.R H.S., F.R.B.S.
N. Subrahmanyam, Esq., *Honorary Treasurer.*
G. Narayanasawmy Chetty, Esq.
L. E. Kirwan, Esq., *Honorary Secretary.*

Resolutions.—The following Resolutions were passed :—

1. That Mr. Cavanagh be granted 6 months leave and that Mr. J. Haskings be asked to act during his absence.

2. That Mr. Cavanagh be given a grant of £20, the conditions being, that should he leave the Society's service within 12 months of his return from leave, he will refund the same to the Society.

3. That with reference to Mr. Wood-Scawen's request that he might audit the office books at his own residence, he be informed that no change can be made from the Resolution passed at a previous Committee Meeting disallowing this.

4. That a Trolly be purchased for use of the Gardens and for hiring out to members.

5. That B Class Members living at a distance of more than 15 miles from Madras may have seeds to the value of their subscription, if in stock.

6. That owing to several complaints as to seeds supplied by the Society not germinating having been received, Messrs. Barber, Fyson and Kirwan be asked to form a Sub-Committee to consider the best methods for obtaining and preserving seed.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during March :—

Government of Madras, Public Works, G. O. No. 260-W., 5th February, 1906, with reference to a wall round the Gardens of the Agri-Horticultural Society at Teynampett.

The following publications of the Central Agricultural Committee, Madras.

Minutes of the Fourth Meeting.

Progress Report.

Government of India, Department of Land Records and Agriculture, File No. 37 of 1906, serial No. 6. Subject.—Cotton Cultivation in India.

Records of the Geological Survey of India, Vol. XXXIII, Part 2, 1906.

The *Queensland Agricultural Journal*, Vol. XVI, Part 6, edited by A. J. Boyd, Esq. F.R.G.S Q.

The *Journal of the Royal Horticultural Society*, London, Vol. XXIX. Part 4, December 1905.

The *Tropical Agriculturist and Magazine of the Ceylon Agricultural Society*, Vol. XXVI, No. 2, edited by J. C. Willis, Esq.

The *Indian Forester*, Vol. XXXII, No. 3, edited by E. P. Stebbing Esq., F.L.S. etc.

The following Royal Botanic Gardens, Kew, Bulletins of Miscellaneous Information :—

Nos. 178 and 180, October—December 1901, Groundnut and Miscellaneous Notes.

No. 2.—1905.—Botanical Survey of the Empire.

Appendix III—1906.—New Garden plants of the year 1905.

No. 1.—1906. I.—Decades Kewenses: XXXVI—XL.
II.—Diagnoses Africanæ: XIV.
II.—New Orchids: 26.

The Bulletin of the Department of Agriculture, West Indies, Vol. IV, Part 1, edited by William Fawcett, Esq., B.Sc., etc., Jamaica.

Le Bulletin du Department de l' Agriculture aux Indes Néerlandaises, No. I, Buitenzorg.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. IV, No. 12, edited by. H. N. Ridley, Esq., M.A., F.L.S.

The West Indian Bulletin, Vol. VI, No. 4 and Pamphlet, series No. 39. Manurial Experiments with Sugarcane in the Leeward

Islands, issued by the High Commissioner of Agriculture, West Indies.

Messrs. William Bull & Sons' Catalogue of plants.

Seeds issued.—The following seeds were sent out during October and November :—

To H. F. Macmillan, Esq., Royal Botanic Gardens, Peradeniya, Ceylon.

¼ lb. Livistonia Mauritiana.

SUB-COMMITTEE MEETING.

At a Sub-Committee held at the Gardens on the 20th March to consider the best methods of obtaining and preserving seeds, the following gentlemen were present.—

Messrs. C. A. Barber, P. F. Fyson, and L. E. Kirwan, *Honorary Secretary*.

The Sub-Committee recorded the following recommendations :—

1. That a Standing Sub-Committee be appointed to deal with all seed matters and that all complaints be considered by this Sub-Committee as this is a matter that cannot be dealt with in a single season.

2. That we should ourselves conduct germination tests with all seeds sent out and that, if necessary, special accommodation should be provided.

3. That a trial order for flower seeds should be given this year to Messrs. Watkins & Simpson, whose correspondence is laid on the table.

4. That in order to carry out the germination tests, flower seeds be imported in bulk, specially tested in the Gardens and made up into our own packets, samples of which are laid on the table.

5. That vegetable seeds be again obtained from Germany as there were no complaints last year, but that a small trial order be placed with Messrs. Watkins & Simpson.

6. That the Society's present arrangements for storing seeds are simply disgraceful.

7. That the centre room be devoted entirely to seed storing and kept locked, and provided with an entirely new set of almirahs.

(Signed) L. E. KIRWAN.
(„) C. A. BARBER.
(„) P. F. FYSON.

SUPERINTENDENT'S NOTES.

The 67th Annual Flower Show.

This being the sixty-seventh year in succession in which the Show has been held, it may truly be said to rank among the oldest institutions of Madras. Being held at the end of the Madras Season, as in late years has been the rule, it reflects, as in a mirror, the effect of the weather of the preceding three months on the efforts of Madras gardeners. Two years ago the complaint was of too much rain, last year of a disastrous drought; and the effect of each was clearly visible on the flowers, ferns, fruits, vegetables, etc., which local horticulturists sent to the February Show in each of those years. This year, however, there has been no cause for complaint against the Clerk of the Weather, who has not only averted all inclemency, but has provided the early and the latter rains in sufficiency, if not in profusion. In consequence, the Show this year was in most respects well up to the average. The large trophies of palms, ferns and foliage, it is true, seem year by year to grow less, but the deficiency in numbers is more often than not compensated by an improvement in quality. The absence of competition in this particular was, perhaps, a matter for regret, but it made the efforts of those who came forward to fill the breach all the more commendable. The arrangements differed somewhat from those of previous years, the time-honoured tents giving place for the most part to lofty and spacious pandals which, though more expensive to erect, lent themselves better to the purposes of the exhibition. The Show ground, at any rate, could scarcely have been improved upon for the purposes of a horticultural display from the point of view of light and airiness. Some tents, however, which had been kindly lent by the Ordnance Department were requisitioned for the Secretary and Judges, the refreshments, etc. Messrs. Simon & Co., Mount Road, catered for the wants of Europeans in a spacious marquee. H. E. the Governor's Band, by kind permission, played a choice selection of airs throughout the morning; and a gramaphone also provided music throughout the day. All the arrangements reflected the greatest credit on the Superintendent, Mr. B. F. Cavanagh.

The judges, to whom as usual half an hour was allotted for the performance of their arduous duties, assembled in the Gardens at 6-30 A.M., the Show being thrown open to the public punctually at 7 A.M. H. E. the Governer arrived somewhat later, attended by Captain Butchart, A.-D.-C., and was received by the Honorary Secretary. Among the exhibits which first attracted attention, as one proceeded down the sidewalk towards the main enclosure, was a fine collection of hibiscus, for which Mr. W. A. H. Oakes deservedly gained a prize. The next to come into view were some excellent groups of flowering and foliage begonias, in both sections of which Mr. N. Subrahmanyam and Mr. A. Robertson were rivals. Between these the judges evidently had some difficulty in discriminating. There was even keener competition for the prizes offered for dianthus, all the collections sent being very good and a decided improvement on those shown in recent years. Guindy

Park gained the prize for verbenas, which were quite up to the average. The exhibits of dahlias and chrysanthemums, though they showed only too clearly that by this date in Madras the best of these are over, may be considered to have been good for the time of year. On the other hand, the season seems to have suited carnations admirably, judging by those exhibited by Mr. Subrahmanyam, which can have been seldom, if ever, excelled in Madras. As new flowers among annuals, Mr. Ross sent some pansies, and Mr. Houghton some handsome tobacco plants, which were awarded the prize, and ageratum. The prize for table decoration attracted keen competition, which was gratifying after the scant attention which had been paid to this class in recent year.

There was keen competition also for the Medals offered for the best general collections of new plants. Mr. Houghton sent a good collection, in which some tydeas, new cannas and a double amaryllis were conspicuous; and a very fine Hippeastrum deservedly won the prize offered by Mr. G. Narayanasawmy Chetty for the best flowering plant in the Show. Mr. Kirwan showed a large number of new plants imported from England a few months ago, which, if less showy than Mr. Houghton's collection, were no less interesting from a horticultural point of view as introductions likely to become established in the gardens of Madras. Conspicuous among these were a score of new crotons, a dozen or more weird-looking *Phyllocactus* and other *Cactaceæ*, which are so much the fashion in England now; some striking *Bertolonias*, a couple of new *Ixoras*, and variegated species of *Hoya* and *Rhynchospermum*. Mr. Menzies sent some new begonias and gloxinias; and Mr. East, of Mercara, a fine mixed collection of Hippeastrums which won the second prize. The judges had a hard task to award the palm between these collections. The trophies of ferns and foliage were certainly less striking than usual, but if, as may be expected, smaller collections mean keener competition in the future, they will be welcomed. Of alocasias, dracænas and caladiums two lots were shown, but there was a lack of competition in the anthurium, ferns, palms and selaginella sections. Some special exhibits of specimen ferns by Mr. Subrahmanyam and Lady Benson were, however, worthy of notice. Of crotons, there were three fine groups as compared with two last year, Mr. Menzies deservedly winning the Silver Medal; while the coleus were certainly better than anything seen in this section for years, the four exhibits all being above the average.

Crossing a small rustic bridge one came upon the annuals, a very bright array. Conspicuous here were several fine groups of balsams, very much above the average. The zinnias, too, were good, Mr. Menzies' and Mr. Nelson's groups being especially effective. Mrs. Twigg was to the fore with fine collections of phlox, petunias and salvias, but her supremacy in each was challenged. The balsams shown were also very good, Messrs. Spencer & Co.'s being the best. The portulaccas were not so good as usual, and the collection of annuals suffered from the rule forbidding duplicates. The annuals, however, taking them all round, were well up to the average. The enclosure set aside for vegetables was well filled, the most striking collections being, as usual, those sent from the Gov-

ernment and Public Institutions, of which no less than four competed, *viz.*, the Saidapet College, the Chingleput Reformatory and the Vellore and Coimbatore Jails, the last-mentioned making the best all-round display. The vegetables sent from Bangalore were poor, but those grown in Madras were good, especially Mr. Vernon's peas. Other good exhibits in this Class were Mr. Houghton's capsicums—a very effective exhibit, and Mr. Kirwan's new tomatoes, *Chiswick Peach*, *Carter's Sunrise* and *Cherry Red*, both of which were awarded prizes; and there were three good groups of herbs.

Opposite the vegetables was arranged the Economic Section, where Mr. Barber's array of sugarcanes was much in evidence. Groups of canes grown on different Government Farms, ranged side by side, provided an instructive comparison. The Agricultural College at Saidapet also sent a fine collection of sugarcanes, and another of unginned cotton. What, however, showed a more decided advance in this section than anything else, as compared with previous Shows, were the fibres, of which there were no less than five separate exhibits, *viz.*, jute fibres, sent by Mr. Barber; a collection of the agave fibres sent Home by the Agri-Horticultural Society to the Imperial Institute for valuation and report, particulars of which appeared in the proceedings for the 4th quarter of 1905; palmyra fibre, also sent by the Society; dyed aloe fibre, sent by the Rajahmundry Jail; and *Furcræa* fibre, sent by Mr. J. C. Large from the Shevaroys. Mr. Large, with commendable enterprise, also sent down a large collection of strawberries, marked "to be tasted." Mr. Houghton showed some fine heads of castor seeds, and there were several miscellaneous collections of seeds, grains, pepper, etc.; also one of "medicinal tea."

The Silver and Bronze Medals offered by the Icthemic Guano Co., Ipswich, for the best plants grown with icthemic guano were won by Messrs. Kirwan and Subrahmanyam with exhibits of salvia and coleus, respectively.

CLASS I.—*Flowers in Pots, exclusive of Annuals.*

Judges:—Lieutenant A. L Clover, R.F.A., Mr. W. A. Turner, Lady Benson and the Hon'ble Mr. C. J. Weir.

Verbenas, not more than two pots of each variety. First prize, a Bronze Medal.—H. E. the Governor; second prize, a Certificate.—Mr. W. A. Turner.

Pinks and Dianthus, single and double varieties, not more than 50 pots. First prize, a Bronze Medal.—Mr. W. A. Turner; second prize, a Certificate.—Mr. A. Robertson.

Carnations and Picotees, not more than 50 pots. First prize, a Silver Medal.—Dewan Bahadur N. Subrahmanyam.

Cannas, not more than 50 pots. First prize, a Silver Medal.—Mr. E. Norton.

Collection of Begonias (Rex varieties), not to exceed 30 pots. First prize, a Bronze Medal.—Dewan Bahadur N. Subrahmanyam.

Collection of Begonias (fibrous-rooted and flowering varieties), not to exceed 30 pots. First prize, a Bronze Medal.—Dewan Bahadur N. Subrahmanyam; second prize, a Certificate.—Mr. A. Robertson.

Chrysanthemums. Second prize, a Bronze Medal.—Messrs. Spencer & Co.

Dahlias. First prize, a Bronze Medal.—Mr. H. A. Nelson; second prize, a Certificate.—Mr. P. Grant.

Hibiscus. First prize, a Silver Medal.—Mr. W. H. Oakes.

Remarks:—Verbenas, not a large class but those shown were well grown. Pinks and Dianthus were a fairly good lot, and there was little to choose between 1st and 2nd. Carnations—a poor lot.

There was no exhibit of climbers. There was no competition in Cannas, but the collection sent by Mr. Eardley Norton presented a good variety of handsome blooms. The exhibits of Begonias, both Rex varieties and flowering, were good and almost equal in merit. The Judges recommend that the second prize not awarded under Hibiscus should be given to Mr. A. Robertson's collection of Begonias. There was only one exhibit of Chrysanthemums which did not merit a first prize. The Judges awarded the second prize. The Dahlias shown were good for those grown in Madras, and Mr. Nelson's collection which won the first prize contained some graceful varieties of Cactus Dahlias of delicate colouring. There was only one exhibit of Hibiscus. This contained a great variety of specimens but the plants were not in good bloom. The Geraniums were poor, but the three specimens sent were creditably grown for Madras.

CLASS II.—*Annuals grown in Pots.*

Second prize, Rs. 5 and a Certificate for Collection of Annuals in pots, no duplicates.—Mr. C. E. Ross.

Double Balsams, 30 pots. First prize, Rs. 5 and a Certificate.—Messrs. Spencer & Co.; second prize, Rs. 3.—Mr. J. W. Shaw.

Portulaccas, 30 pots. First prize, Rs. 5 and a Certificate.—H. E. the Governor; second prize, Rs. 3.—Mr. W. A. Turner.

Asters in pots. Second prize, Rs. 3 —Mr. C. Brooke-Leggatt.

Phloxes, 30 pots. First prize, Rs. 5 and a Certificate.—Mrs. Twigg; second prize, Rs. 3.—Mr. W. C. Scott.

Petunias, single and double. First prize, Rs. 5 and a Certificate.—Mr. P. Grant; second prize, Rs. 3.—Mrs. Twigg

Double Zinnias, 30 pots. First prize, Rs. 5 and a Certificate.—Mr. R. T. Menzies; second prize, Rs 3.—Captain Parry.

Salvia. First prize, Rs. 5 and a Certificate.—Mr. L. E. Kirwan; second prize, Rs. 3.—Mrs. Twigg.

The extra prize given for any new flowers in this class not raised or exhibited in Madras before. (1) Mr. H. E. Houghton for Nicotiana (tobccao). (2) Mr. H. E. Houghton for Cobæas.

Judges:—Mrs. G. W. Dance, the Hon'ble Sir Ralph Benson and Major R. H. Elliot, I.M.S.

Remarks:—Collection of annuals—a poor class; only one exhibit. Double Balsams—a very fine class; the first especially good. Portulaccas—only two exhibits; both fair. Asters—very poor

Phloxes—a good class. Climbers—no competition. Petunias—both the exhibits were good. Double Zinnias—a fair class. Salvia the first prize a particularly fine exhibit grown with a special manure.

Extra prize.—A very interesting collection of *Nicotiana* (tobacco) obtained the first prize, the second prize went to an entirely new climber.

CLASS III.—*Cut Flowers.*

Best Fountain Bouquets, Rs. 5.—Mr. M. Venkatasawmy Naidu.

Best Shower Bouquet, Rs. 5.—Mrs. Robertson.

Best 6 Button-holes, Rs. 3.—Mrs. Grant; 2. M. F. Yakambaram.

Hollyhocks, Rs. 3.—Mr. E. Norton.

Best collection of cut flowers from shrubs grown in Madras, Rs. 5.—Government House.

Basket of cut flowers, Rs. 5.—1. Mr. F. B. Lovery; 2. Mrs. A. Robertson; 3. M. F. Yakambaram.

Table decorated with fruits and flowers or either. 1st prize Silver Medal.—Mrs. P. Grant; second prize Bronze Medal.—T. W. Mitchell.

Judges :—Mr. H. A. Nelson and Mrs. Giffard

Remarks :—Best Fountain Bouquet. Only the exhibit that won the first prize, out of the 4 exhibits, could be considered as being anything like a fountain bouquet. White small flowered begonia and ferns were very nicely arranged, the others were far too compact and stiff. Shower Bouquet. Only one exhibit, which was awarded first prize. Pink and white antigonon : too heavy looking and compact. Hollyhocks.—These were a fine show of various varieties of single hollyhocks. The only one in this class was awarded 1st prize. Dahlias.—A very poor faded collection unworthy of mention. The flowers were also identified by a lady and her *mali* as the ones that had been stolen from her compound two nights previously. [It is satisfactory to note that this *mali* was subsequently prosecuted and convicted of theft.] Helianthus.—Only one exhibit and not arranged in vase as specified in the Rules, but a very good collection for the time of the year. Chrysanthemums.—Two exhibits but not worth a prize; the varieties were not distinct and the flowers very small and many of them faded. Asters and Cut Roses.—No exhibits. Cut Flowers.—A very fine collection containing many uncommon varieties. Basket of Cut Flowers.—The prize winner had a very pretty arrangement of pink begonia and white flowers and asparagus fern. Table decorations.—The tables being unnumbered the Judges could only place cards on the two best for 1st and 2nd prizes.

CLASS IV.—*Ferns and Foliage Plants.*

Judges :—Mr. C. Sowden, Mr. R. L. Proudlock, the Hon'ble Mr. H. Bradley, Mr. J. A. Yates, Mr. P. F. Fyson and Mr. B. F. Cavanagh.

Trophy of Ferns and Allied Plants. First prize, a Silver Medal. —Mr. E. Norton.

Collection of Well-grown Ferns, not more than one pot of each species to be exhibited. First prize, a Silver Medal.—Dewan Bahadur N. Subrahmanyam; second prize, a Bronze Medal.—Lady Benson.

Trophy of Foliage Plants. First prize, a Silver Medal.—Mr. R. T. Menzies.

Caladiums, no duplicates. First prize, a Silver Medal.—Mr. L. E. Kirwan; second prize, a Bronze Medal.—Mr. R. T. Menzies.

Alocasias. First prize, a Silver Medal.—Mr. R. T. Menzies; second prize, a Bronze Medal.—The Hon'ble Mr. J. Twigg.

Palms and Cycads. First prize, a Silver Medal.—Mr. E. Norton.

Crotons. First prize, a Silver Medal.—Mr. R. T. Menzies; second prize, a Bronze Medal.—Dewan Bahadur N. Subrahmanyam.

Ornamental Grasses. First prize, a Bronze Medal.—Mr. H. E. Houghton.

Dracænas, no duplicates First prize, a Silver Medal.—Mr. E. Norton; second prize, a Bronze Medal.—Mr. R. T. Menzies.

Aralias and Panax. Second prize, a Bronze Medal.—Mr. R. T. Menzies.

Lycopodium and Selaginella, no duplicates. First prize, a Silver Medal.—Mr. P. Grant.

Anthuriums. Second prize, a Bronze Medal.—Mr. E. Norton.

Coleus, no duplicates. First prize, a Silver Medal.—Mr. W. A. Turner; second prize, a Bronze Medal.—Mr. L. E. Kirwan; third prize, a Certificate.—Dewan Bahadur N. Subrahmanyam.

Silver Medal for the best collection of New Plants.—Mr. H. E. Houghton.

Bronze Medal for second best collection of New Plants.—Mr. H. R. East.

Certificate for third best collection of New Plants.—Mr. L. E. Kirwan.

Special prizes awarded for the best plants in Classes 1, 2 or 4 grown with Ichthemic Guano.—First prize, a Silver Medal.—Mr. L. E. Kirwan for Salvia; second prize, a Bronze Medal.—Mr. N. Subrahmanyam for Coleus.

Remarks:—Trophy of Ferns and Allied Plants—only one exhibit which contained a good number of well-grown plants. Ferns—two exhibits, both of *Adiantum farleyense*. The exhibit of Dewan N. Subrahmanyam which was awarded a Silver Medal contained several nicely grown specimens. The exhibit by Lady Benson which was awarded a Bronze Medal was also a good specimen, but the Judges considered that the staking of it was somewhat faulty. Foliage Plants—considering the dry season the exhibit well deserved the Silver Medal. Caladiums—not so good a show as last year, but both collections contained some rare varieties. Alocasias—on the whole good collections. Palms and Cycads—only

one exhibit containing a good selection of very well grown specimens. The exhibits from Nos. 7 to 15 are on the whole not bad considering the season. It is supposed that no duplicate should be shown, and if this condition were enforced there would hardly be a single exhibit worthy of a prize. It is absurd for the exhibitors to endeavour by the largeness of a collection to win prizes. The no-duplicate rule should be strictly enforced. The crotons should be so arranged that each plant might be seen separately and the growth judged. With regard to the new plants a number of Amaryllis were shown. These being bulbs might have been put in another class. They can hardly be called foliage plants. No. 16—Mr. Houghton's exhibit included some very fine blooms. The Salvia shown by Mr. L. E. Kirwan were a nice, even, well-grown lot.

CLASS V.—*Vegetables (grown in Madras). Not open to Government and Public Institutions.*

Celery, best 6 sticks, Rs. 3.—Government House.

Beetroot, best 12 roots, Rs. 3.—St. Patrick's Orphanage.

Turnips, best 12 roots, Rs. 3.—Subraya Naicker.

Carrots, best 12 roots, Rs. 3.—Anantharaya Pillay (Seven Wells).

Onions, best 12 roots, Rs. 3.—Messrs. Spencer & Co.

Leeks, best 12 roots, Rs. 3.—Messrs. Spencer & Co.

Cucumbers, best English 6, Rs. 3.—Messrs. Spencer & Co.

Cucumbers, best Country 6, Rs. 3.—Messrs. Spencer & Co.

Vegetable Marrows, best 6, Rs. 3.—St. Patrick's Orphanage.

Cabbages, Green, best 6 heads, Rs. 3.—Not awarded.

Cabbages, Red, best 6 heads, Rs. 3.—P. T. Munisawmy Chetty.

Tomatoes, Red, best 12 fruits, Rs. 3.—Abdul Cawder Sahib.

Tomatoes, Yellow, best 12 fruits, Rs. 3.—Messrs. Spencer & Co.

Peas, best 2 plates (shelled and unshelled), Rs. 3.—Mr. H. A. B. Vernon.

French Beans, best 2 plates, Rs. 3.—Messrs. Spencer & Co.

Kidney Beans, best 2 plates, Rs. 3.—Chockalinga Chettiar.

Lettuces, best 6, Rs. 3.—P. T. Munisawmi Chetty.

Knol-Khol, best 12, Rs. 3.—P. T. Munisawmi Chetty.

Jerusalem Artichokes, best 12, Rs. 3.—P. T. Munisawmi Chetty.

Radishes, best collection, 1 bunch of each kind, Rs. 3.—Seven Wells.

Chillies and Capsicums grown in pots, Rs. 3.—Mr. H. E. Houghton.

Sweet Herbs grown in pots, Rs. 3.—Messrs. Spencer & Co.

The extra prize given for any new vegetables in this class not exhibited in Madras before.—Mr. L. E. Kirwan for Tomatoes.

Judges:—Mr. H. E. Houghton and Mr. G. Narayanasamy Chetty.

Remarks:—The exhibit of Vegetables was on the whole poor. Peas, Tomatoes and Chillies, especially the two last named, were

very good indeed, the tomatoes being quite new kinds, never before exhibited.

CLASS VI.—*Vegetables (grown anywhere). Not open to Government and Public Institutions.*

Celery, best 6 sticks, Rs. 3.—Bungaru Naidu.

Knol-Khol, best 12 roots, Rs. 3.—N. Parthasarathy Naidu.

Beetroot, best 12 roots, Rs. 3.—N. Parthasarathy Naidu.

Carrots, best 12 roots, Rs. 3.—N. Parthasarathy Naidu.

Turnips, best 12 roots, Rs. 3 —N. Parthasarathy Naidu.

Onions, best 12 roots, Rs. 3.—Thulasi Naidu.

Cabbages, best 6, Rs. 3.—N. Parthasarthy Naidu and J. Thulasi Naidu.

Vegetable Marrows, best 6, Rs. 3.—Bungaru Naidu.

Cucumbers, best 6, Rs. 3.—Govinda Pillay.

French Beans, best 2 plates, Rs. 3.—Venkatachellam Pillay.

Kidney Beans, best 2 plates, Rs. 3.—N. Parthasarathy Naidu.

Tomatoes, Red, best 12, Rs. 3.—N. Parthasarathy Naidu.

Chillies, best plate, Rs. 3.—St. Patrick's Orphanage.

Brinjals, best plate, Rs. 3.—Govindarajulu Naidu.

Bandikai, best plate, Rs. 3.—V. Murugasa Naicker.

Potatoes, large, best plate, Rs. 3.—Madura Ammall.

Potatoes, small, best plate, Rs 3.—Audiah Naidu.

Collection of Salad Plants, Rs. 3—N. Parthasarathy Naidu.

Lettuces, best 6, Rs. 3—Thulasi Naidu.

Cauliflowers, best 6, Rs. 3.—Govinda Pillay.

Collection of Edible Roots, Rs. 3.—N. Kuppusawmy Naicker.

Judges :—Messrs. H. A. B. Vernon and J. A. Yates.

Remarks :—Roots were an exceptionally good class, carrots, beetroot and the golden deep turnips being the best. Potatoes were fine—peas and beans were decidedly poor, and the only exhibit of peas was disqualified as they were not shown shelled and unshelled. Celery was fine, rather coarse and not well blanched. The Cabbage class was chiefly represented by the large and somewhat coarse kind; the fine kind was not well represented. Good exhibits of Red Cabbage might be given a prize. Cauliflowers were good. One competitor was disqualified for pointing out his exhibits to the Judges in this class. Onions were good and there was a good exhibit of leeks which were awarded a prize. Brinjal, Bandikai and Chillies were fair, but each variety of exhibits should have been separately shown. Tomatoes were an exceptionally fine exhibit, but the class was poor outside this.

CLASS VII.—*Fruits.*

Raspberries, best plate, Rs. 3.—Ponnamall.

Strawberries, best plate, Rs. 5.—Thopana.

Peaches, best 12 fruits, Rs. 5.—Thiruvengadam Chetty.

Apples, best 12 fruits, Rs. 5.—K. Govinda Chetty.

Sweet Oranges, best 12 fruits, Rs. 3.—M. Munisawmy Naidu.

Pumplemoses, best 12 fruits, Rs. 2.—Kutti Chetty.

Figs, best 12 fruits, Rs. 5.—Thiruvengadam Chetty.

Grapes, *a.* 3 Bunches, White, Rs. 5.—M. Munisawmy Naidu, 2. K. Govinda Chetty; *b.* 3 Bunches, Black, Rs. 5.—Ponnamall.

Sapodillas, best, 12 fruits, Rs. 3.—K. Govinda Chetty.

Melons, best, Rs. 3.—M. Munisawmy Naidu.

Collection of different varieties of plantains, Rs. 3.—T. Manicka Naiker.

Lemons, best 12, Rs. 5.—M. Munisawmy Naidu.

Limes, best 12, Rs. 3.—Rungasawmy Moodelly, 2 M. Munisawmy Naidu.

Guavas, best 12, Rs. 3.—M. Munisawmy Naidu.

Citrons, best 12, Rs. 3.—Munisawmy Gownder.

Green Cocoanuts (different varieties), Rs. 5—Santhi Pillay.

Judges:—Dewan Bahadur N. Subrahmanyam and Mr. J. Josselyn.

CLASS IX.—*Vegetables* (*grown anywhere*).
Open to Government and Public Institutions.

Best collection of English Vegetables. First prize, a Bronze Medal.—Coimbatore Jail; second prize, a Certificate.—Vellore Jail.

Best collection of Indian Vegetables. First prize, a Bronze Medal.—Vellore Jail; second prize, a Certificate.—Coimbatore Jail.

Judges:—Messrs A. L. Hannay and V. G. Lynn.

Remarks:—English Vegetables—it was difficult to select the prize winner, but on the whole the individual exhibits from Coimbatore seemed to us best. It would facilitate judging in this Class if Indian and English Vegetables were kept apart. A good show of Indian Vegetables especially.

CLASS X.—EXTRA PRIZE LIST.

Best sample of Aloe fibre, not less than 5 lbs. Prize, a Bronze Medal.—Mr. J. C. Large.

The best collection of different varieties of groundnut in pod with samples of oil-cake and fodder produced from them. Prize, a Bronze Medal.—Murugasa Naicker.

Best collection of exotic varieties of cotton. Prize, a Silver Medal.—T. Manicka Naicker.

Sugarcane, best samples of cane, each sample to contain not less than 6 canes. Prize, a Silver Medal.—College of Agriculture.

A collection of Sorghums in ear, not less than 5 ears of each variety. Prize, Rs. 10.—College of Agriculture.

A collection of Castors, not less than 5 spikes, and 2 lbs. of cleaned seeds of each variety. Prize, Rs. 10.—T. Govindaraya Pillay.

Silver or Bronze Medal awarded for any exhibits of special economic value, *e.g.*, rubbers; tobacco leaf grown locally, fit for wrappers; tanning materials, etc., etc.—T. M. Ratnasawmy Pillay & Co. (tobacco wrappers); Messrs. Robinson & Co. (tobacco wrappers).

Judges :—Mr. C. Benson, Mr. C. A. Barber and the Hon'ble Mr. A. J. Yorke.

Remarks :—Best sample of Aloe fibres—only one competing exhibit of aloe fibre was ruled out as it was not shown in suitable condition. The Judges awarded the 1st prize for a very fine sample of *Furcræa* fibre. The best collection of dried pepper—The specimens shown were not considered worthy of a prize.

Groundnuts.—Only one exhibit came within the offer, and the absence of proper preparation and labelling detracted largely from its value.

Unginned Cotton.—The skein of cotton was very indifferent. The only specimens of indigenous cottons were poorly prepared and the exhibitors showed no special quality.

Sugarcane.—The sugarcane exhibits were very good and interesting, and the collection which was awarded a prize was especially notable.

Sorghums in Ear.—The collections were small and the specimens not of good quality.

Castors.—Here again the collections were indifferently arranged and not properly labelled.

Tobacco.—Amongst the exhibits the specimens of tobacco which the Judges here considered were valuable, and No. 14 is especially fine leaf.

The following is a list of the New Plants exhibited by Mr. H. E. Houghton at the Show.

Ageratum Mexicanum Imperial dwarf Var.
Nicotiana Sanderæ, gigantea.
Macrophylla Wigandioides (true).
Cobæa macrostima. The Mexican Ivy.
Dictyosperma fibrosum. The Pissava of Madagascar.
Raphia vinifera, African Wine palm.
Livistona altissima.
Begonia, La France.
,, Madon.
,, Marie Daval.
,, René Garry-Desloges.
Dracæna, Dutches of York.
Maranta tigrina.
Agapanthus insignis.
Cespedesia discolor.
Nidularium innocentii striatum.
Acanthus latifolius.
,, Mollis.
,, Lusitanicus.
Phyllotænium Lindeni.
Trifolium Minus Shamrock of Ireland.
Amaryllis, Didius.
,, Corsair.
,, Ariadne.
,, Europa.
,, Baroness.
,, Bass.
,, Finette.
,, Japan.
,, Scharr.
Canna, Mrs. Kate Gray.
Lobelia fulgens, Geradi
Tydæa hybrida, grandiflora.
Gloxinia, new.

The following is a list of the New Plants exhibited by Mr. L. E. Kirwan at the Show.

Crotons, Newmanii.
„ Domei.
„ Mrs. McLeod.
„ Superba.
„ Golden Ring.
„ Interruptus Aurea.
„ Cupid
„ Laingii.
„ Flamingo.
„ Ruberrimus.
„ Magnificent.
„ Interruptus elegans.
„ Flambeau.
„ Elvira.
„ Beauty.
„ Cronstadtii.
„ Pinitzianus.
„ Inimitabilis.
„ Mrs. Dorman.
„ Queen Victoria.
„ Picturatus.
„ Nicholson.
Dichorisandra musiaca.
Hoya Carnosa, Variegata.
Phrynium, Variegata.
Clerodendron Fallax.
Ixora, Prince of Orange.
„ Duffii.
Bertolonia Sanderiana.
„ Marmorata.
„ hirsuta maculata.
Carex Crunnea.
„ Victoria.
Rhyncospernum jasminioides var.
Crinum Powelli.
„ „ Var. Album.
Phyllocactus, Professor.
Phyllocactus, Couranti.
„ Mad D'Ors.
„ Souvenir Compiégne.
„ Benselerianus.
„ Laloyi.
„ Caroline.
„ Rosa Bonheur.
„ Banez.
„ Euananti.
„ German Empress.
„ Wrayi.
„ John Severis.
„ Lady Fluyshe.
Cereus grandiflora, Macdonaldi.
„ „ Donati.
„ Maynardi.
Caladiums, Guararma.
„ Comtesse de Berther.
„ „ Brossa.
„ Cardinale.
„ E. C. Dahle.
„ William Broad-bent.
„ Laing.
„ Avilon.
„ George Bergin.
„ Minus erubescens.
„ Iquata.
„ Loisse Bagus.
„ Henry Lanatt.
„ Zereberus.
„ Mrs. Laing.
„ Argyrites dwarf.
„ Roma.
„ Gaston Chandon.
„ Sir Henry Irving.
„ Madam J. R. Box.

Echinopsis Eyriesi; Acalypha Musaica; Rhipsalis funalis.

SUPERINTENDENT'S NOTES.

Agave Cultivation at Pallavaram.—In company with the Honorary Secretary I paid the Agave plantation at Pallavaram a visit in February last.

This estate has now been in existence 3 years and had everything gone well, there should have been sufficient leaf for a

first crop this year. The error of planting too deep was made, however, in the first year and this proved fatal to a large number of the plants. Others lost their leader and sent up side growths and, thus their growth was considerably checked. Most of the plantation therefore, although it is 3 years since it was started, has actually only two years' growth. The experience here proves conclusively that on level ground the plants thrive better and remain healthier when planted on ridges. The cost of planting thus is a little greater, but the results are far more satisfactory.

The Sisal bulbils purchased by Mr. Chambers from the Gardens, which had been planted out in 1904, showed signs of having suffered considerably during the hot weather of 1905. The plants flagged and at one time it was feared they would die off. However, with the advent of rain the plants came round but were very much disfigured. Of many of the plants the lower leaves had dried off and were black for a considerable length from the tips. On closer examination a fungus was noticed to be present on the blackened portion, and as it was thought probable that this might account for the damage to the leaves samples were collected and forwarded to Pusa addressed to Dr. E. J. Butler, Entomologist to the Government of India. From his report which is appended it will be seen that he is of opinion that the fungus developed on the decayed portion of the leaves is not itself responsible for the decay. One can only surmise that the extreme heat and dryness of last year were the causes of the leaf tips dying back thus. Plants of Agave Americana syn. Vera Cruz growing in close proximity to the Agave rigida var. Sisalana syn. Perine, had not suffered in any way thus practically illustrating that the former is the hardier of the two varieties. From these results as well as from experience gained in other parts of Southern India, it would seem that Sisal hemp thrives better, yields a heavier crop and produces a fibre with a larger amount of cellulose, when grown at an elevation of 2,000 or 3,000 feet above sea-level with a moderate rainfall.

Office of the Cryptogamic Botanist to the Govt. of India,

Pusa, Bengal.

Dated 31st January, 1906.

Dear Sir.—The Agave leaves sent with your letter No. 21, dated the 8th January, 1906, from Pallavaram are covered with a fungus of the genus of Pleospora. I have no information to show whether this is capable of damaging the leaves or not, but I am inclined to think that it has merely grown on the already dead portions of the

leaves. The withering of the tips of the leaves is probably due to some other causes and is a common appearance in cultivated Agaves. I am unable to suggest any method of eradicating it as the cause is unknown.

I am,
Dear Sir,
Yours faithfully,
E. J. BUTLER.

To

The Secretary,
Agri-Horticultural Society,
Teynampett, Madras.

Financial Statement from January to March, 1906.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
By Balance with Messrs. Spencer & Co., Ltd., on the 31st December, 1905 ..	1,114	5	0				To Salary of the Superintendent, Office and Garden Establishment				1,210	14	5
,, Do. of Petty Cash on hand on the 31st December, 1905.	200	0	0				,, Garden Coolies, Permanent ..	170	4	6			
							,, Do. Temporary ..	141	0	6			
				1,314	5	0					311	5	0
,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0	,, Commission to Superintendent for 4th quarter, 1905				59	8	6
,, Subscription from Members of A Class	854	0	0				,, Purchases of seeds, plants, flowers, and fruit trees, etc.				735	8	2
,, Subscription from Members of B Class	171	0	0				,, Charges recoverable				546	14	1
				1,025	0	0	,, Garden requisites, including pots, manure, etc.				186	0	6
,, Government Grant for the month of December, 1905	250	0	0				,, Discount on mofussil cheques ..	0	8	0			
,, Government Grant for the month of January, 1906	250	0	0				,, Petty charges, including carriage hire, etc.	21	0	5			
,, Government Grant for the month of February, 1906	250	0	0				,, Sundries, including oil, etc. ..	0	2	0			
,, Government Extra Grant for Flower Show, 1906	500	0	0				,, Packing materials, including baskets, etc.	30	15	0			
				1,250	0	0					52	9	5
							,, Furniture and plant account				8	10	5
							,, Books and periodicals account				14	8	0
							,, Printing and stationery account				212	8	6

.. Sales of seeds, plants, flowers and fruit, trees, etc. ..	1,791	14	2				,, Postages, stamps and telegrams account	58	13	9			
,, Sale of Ichthemic guano ..	63	8	0				,, Advertisement charges account ..	52	1	6			
,, Loan of plants account ..	239	14	8				,, Garden expenses account ..	58	10	1			
				2,095	4	10					169	9	4
.. Out-door work account ..	..	..	..	3,516	5	11	,, Economic research account ..	..	..	..	16	14	6
.. Flower Show Admission Tickets, etc.	..	..	..	906	8	0	,, Ichthemic guano account ..	..	..	..	108	0	0
							,, Out-door work Account ..	..	..	..	1,167	0	9
							,, Red Hills water-supply account ..	..	..	..	93	14	7
							,, Building account	..	..	..	589	6	0
							,, Flower Show account	..	..	..	1,071	8	6
							,, Repairing Fernery account ..	..	..	..	18	0	0
							,, Security of Cashier deposited with Messrs. Arbuthnot & Co. ..	..	..	..	750	0	0
							,, Balance of petty cash on hand on the 31st March, 1906 ..	200	0	0			
							,, Balance of general cash on hand with Messrs. Spencer & Co., Ltd., on the 31st March, 1906 ..	3,334	11	1	3,534	11	1
Total Rupees ..	..	..	..	10,857	7	9	Total Rupees ..	..	..	..	10,857	7	9

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 10*th April*, 1906.

L. E. KIRWAN,
Honorary Secretary.

Audited and found correct.
E. C. WOODS-SCAWEN,
Auditor.
14*th April*, 1906.

N. SUBRAHMANYAM,
Honorary Treasurer.

PRINTED BY HIGGINBOTHAM & CO., MADRAS AND BANGALORE.

Proceedings of the Agri-Horticultural Society of Madras for the 2nd Quarter ending the 30th June, 1906.

At a Committee Meeting held on the 2nd April, the following gentlemen were present:—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
C. A. Barber, Esq., F.L.S.
P. F. Fyson, Esq., F.L.S.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
V. G. Lynn, Esq.
G. Narayanasawmy Chetty, Esq.
Dewan Bahadur N. Subrahmanyam (*Honorary Treasurer*).
L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed:—

1. That Mr. Justice Boddam be Chairman for the year.

2. That the Report of the Sub-Committee appointed to consider the best methods of obtaining and preserving seeds be adopted, and that the three members of the Sub-Committee be requested to act as a Standing Committee to deal with all seed matters.

3. That the suggested alterations in the Prize List of the Annual Show be adopted.

4. That the date of the Annual Show be altered from the last Saturday in February to the last Saturday in January.

5. That the Cashier's pay be raised to Rs. 35 a month.

6. That Sir Ralph Benson and Messrs. Houghton, Kirwan and Subrahmanyam be asked to form a Sub-Committee to consider the proposals of the Superintendent for educating the garden boys.

7. That the names of members proposed for election be submitted at the Meetings of the Committee instead of the ballot book being circulated as at present.

SUB-COMMITTEE MEETING.

At a Sub-Committee Meeting held at the Gardens on the 6th April to consider the proposals of the Superintendent for educating the garden boys, the following gentlemen were present:—

Sir Ralph Benson, Messrs. Subrahmanyam, Houghton and Kirwan.

The Honorary Secretary read the following letter from the Superintendent.

THE GARDENS,
March 26th, 1906.

L. E. KIRWAN, ESQ.,
Honorary Secretary.

DEAR SIR,—An attempt was made in Mr. Storey's time to start a school for the benefit of the garden boys; it however was a failure, as it was found that after the boys had gained a little knowledge, they left the gardens to follow some other trade or profession which brought them better pay and prospects.

When I arrived here in 1900 I made a similar attempt with like results. During the last twenty years, judging by reports, etc., Horticulture has made great strides by introducing exotics of all kinds. Nothing, however, has been done to improve the knowledge of the Madras *mali*.

It appears to me that one of the chief aims of this Society should be the thorough training of boys, to enable them to properly carry out the duties of Head Maistries.

The boys we now get in the Gardens are, through no fault of their own, illiterate in Tamil as well as English, and unless they have an opportunity of gaining some elementary knowledge of reading, writing, etc., in English and their own languages, cannot be expected to gain more than on a very elementary knowledge of gardening.

I would suggest that a class be started in the Gardens to give these boys instruction. The services of a qualified native could be engaged on a salary of Rs. 5 per month.

As a means of keeping these boys in the Gardens I would suggest that a Provident Fund be organised on the same lines as the one now in force for the teachers of the Civil Orphan Asylum. The cost of such a fund to the Gardens would not exceed Rs. 70 a year.

Presuming that such a Fund was started, I would propose that the boys be first engaged for a few months and, if found willing and capable of learning, be made to sign agreements binding them to

the gardens for 5 years, on a sliding scale of wages, *viz.*, Rs 3-8-0 per month for the first two years, Rs. 4 for the second two years and Rs. 4-8-0 for the fifth year. Out of their pay they should contribute 1 anna in the Rupee to the Provident Fund, the Society adding 6 pies for every Rupee. By this means, a boy after he had completed five years would have Rs. 22 *plus* interest to his credit, which he could draw if he wished to leave, or if he preferred to remain on, the amount should remain until such time as he left the Society's service.

I would also suggest that the benefits of this Fund should be extended to the present garden and office staff; this would obviate the continual changing of gardeners which now takes place. At present I have no hold on them. Their salary is small and, in some instances, much lower than the ordinary cooly gets in a private garden. The result is that as soon as opportunity arises, they leave to take up other work which offers, sometimes only 8 annas per month more. For the welfare of the Gardens it is important that each man should be trained to each particular section of work. This, however, under the present ruling it is difficult and almost impossible to do.

Yours faithfully,

B. F. CAVANAGH.

The Sub-Committee recorded the following opinions :—

1. That there is certainly scope for improvement among gardeners and garden Maistries in Madras.

2. That if the boys are instructed as Mr. Cavanagh suggests they will, if there is nothing to prevent them, take the earliest opportunity of giving up Horticulture.

3. That the ordinary cooly boys are not the stock from which good responsible Maistries are made, but we would suggest that boys who have already received some elementary education and show intelligence should be attracted by good pay and prospects, (*i.e.*, with an offer of Rs. 5 a month to commence with and the promise of a certificate if they give satisfaction at the end of 5 years)—to take to Horticulture under the Society and work like the other boys with a view to eventually becoming responsible Maistries.

4. That should any of the ordinary cooly boys show special promise and a desire to be educated, the Society should help them ; this might be tried by allowing them to work half the day in the Gardens and the other half at some school in the neighbourhood such as Sullivan's Gardens and continued if the reports are satisfactory.

5. That there is a fear that the boys when they have gained a little knowledge will seek other employment elsewhere, as

has happened before, but we consider that this risk must be faced and that so long as the boys do not forsake Horticulture the objects of the Society will be carried out.

SIR RALPH BENSON.
N. SUBRAHMANYAM.
H. E. HOUGHTON.
L. E. KIRWAN, *Hon. Secy.*

COMMITTEE MEETING.

At a Committee Meeting held on the 25th April, 1906, the following gentlemen were present:—

The Hon'ble Mr. Justice H. T. BODDAM (*Chairman*).
C. SOWDEN, Esq.
V. G. LYNN, Esq.
P. F. FYSON, Esq., F.L.S.
H. E. HOUGHTON, Esq., F.R.H.S., F.R.B.S.
G. NARAYANASAWMY CHETTY, Esq.
L. E. KIRWAN, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed:—

1. That the small gate leading on to the Mount Road be done away with as suggested by the Honorary Secretary.

2. That the Report of the Committee appointed to consider the proposals of the Superintendent for educating the garden boys be circulated.

3. That Mr. Cavanagh's agreement as drawn up by Mr. Subrahmanyam be signed by the Honorary Secretary.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during April:—

The *Indian Textile Journal*, Vol. XVI, Nos. 186 and 187.

Curtis's Botanical Magazine, Vol. II, No. 16. edited by Sir William T. Thistleton Dyer, K.C.M.G., etc.

The *Tropical Agriculturist and Magazine of the Ceylon Agricultural Society*, Vol XXVI, No. 4, edited by J. C. Willis, Esq

The *Gardeners Chronicle*, Vol. XXXIX. Nos. 1,004, 1,005, 1,006 and 1,007. Purchased.

The *Queensland Agricultural Journal*, Vol. XVI, Part 7, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. IV, No. 13, edited by H. N. Ridley, Esq., M.A., F.L.S.

The Bulletin of the Department of Agriculture, West Indies, Vol. IV, Part 2, edited by William Fawcett, Esq., B.Sc., etc., Jamaica.

The *Indian Forester*, Vol. XXXII, No. 3, edited by E. P. Stebbing, Esq., F.L.S., etc.

Le Bulletin du Department de l'Agriculture aux Indes Néerlandaises, No. 2, Buitenzorg.

Records of the Geological Survey of India, Vol. XXXIII, Part 3, 1906.

University of California Publications:—Bulletin No. 172.—Further experience in Asparagus Rust Control, by Ralph E. Smith. Bulletin No. 173.—Commercial Fertilizers, by Geo. Roberts. Bulletin No. 174.—A New Wine-Cooling Machine, by Frederic T. Bioletti.

Bulletin of Miscellaneous information issued by the Director, Royal Botanic Gardens, Kew.

The following publications of the Central Agricultural Committee, Madras:—

Circular No. 10.—Mr. Lefroy on Cotton Pests and Parasites.

Circular No. 11.—Caravonica Cotton, by the Honorary Secretaries, H. K. Beauchamp, Esq., and P. Rajaratna Mudaliar, Esq.

Circular No. 12.—Distribution of seeds from Government Farms, by the Honorary Secretaries.

The Transvaal Agricultural Journal, Vol. IV, No. 15, edited by William Macdonald.

Plants issued.—The following plants were sent out during April:—

To R. L. Proudlock, Esq., Curator, Government Botanic Gardens, Ootacamund.

1 doz. Adiantum Farleyense.

To C. J. Hay-Ellis, Esq., People's Park.

41 plants of sorts.

Plants received.—The following plants were presented to the Society during April:—

From R. T. Menzies, Esq., Teynampett.

1 Heliconia.

Seeds issued.—The following seeds were sent out during April:—

To the Superintendent, Municipal Gardens, Bombay.

½ lb. Acacia auriculiformis.

To the Director, Botanic Gardens, Singapore.

1 packet of Areca concinna.
1 „ Kentia Wendlandiana.
1 „ Livistona Mauritiana.

Seeds received.—The following seeds were presented to the Society during April :—

From the Director, Botanic Gardens, Sydney.

11 packets of seeds.

From S. Thathacharry, Esq., Triplicane.

½ measure of Cassia auriculata.
½ „ Tephrosia purpurea.
1 packet of Khattoo vagai.

From L. E. Kirwan, Esq., Nungumbaukam.

1 packet Hippeastrum.
1 „ Vallaris.

From R. L. Proudlock, Esq., Ootacamund.

2 fruits Couroupita guineensis.

From the Director, Botanic Gardens, Lille, France.

31 packets seeds.

From the Director, Botanic Gardens, Siena, Italy.

5 packets seeds.

From the Director, Botanic Gardens, Zurich.

27 packets seeds.

From the Superintendent, Victoria Gardens, Bombay.

1 packet Ravenala Madagascariensis.

New Members.—The following were proposed and elected ordinary members of the Society :—

Class A.—E. A. McMillan, Esq.
Class B.—Mrs. Foulkes.

Contributions.—The following contributions were made to the Society during the month of May :—

The *Indian Forester*, Vol. XXXII, No. 3, edited by E. P. Stebbing, Esq., F.L.S., etc.

The *Gardeners Chronicle*, Vol. XXXIX, Nos. 1,008, 1,009, 1,010, 1,011 and 1,012. Purchased.

The *Tropical Agriculturist and Magazine of the Ceylon Agricultural Society*, Vol. XXVI, No. 4, edited by J. C. Willis, Esq.

Annual Report on the Gardens of His Highness the Maharana Fateh Singhji Bahadur, G.C.S.I., of Udaipur, Merwar, for the year 1905-06.

The Bulletin of the Department of Agriculture, West Indies, Vol. IV, Part 3, edited by William Fawcett, Esq., B.Sc., etc., Jamaica.

West Indian Bulletin, Vol. VII, No. 1, issued by the Commissioner of Agriculture.

The Agricultural Ledger Series, Bulletin No. 14, Sorghum Vulgare, edited by Sir George Watt, C.I.E., Economic Reporter to the Government of India.

Bulletin of Miscellaneous information issued by the Director, Royal Botanic Gardens, Kew.

Curtis's Botanical Magazine, Vol. II, No. 17, edited by Sir William T. Thistleton Dyer, K.C.M.G., etc.

University of California Publications:—Bulletin No. 175.—Tomato Diseases in California, by Ralph E. Smith. Bulletin No. 176.—Sugar Beets in the San Joaquin Valley, by G. W. Shaw.

The *Agricultural News*, Vol. V, Nos. 103 and 104, and Bulletin No. 40.—Seedling Canes and Manurial Experiments at Barbados, 1903-05, issued by the Commissioner of Agriculture for the West Indies.

Plants issued.—The following plants were sent out during May:—

To F. W. Tytler, Esq., Belgaum.

1 Canna pink.
1 Kopsia fruticosa.
2 Solanum Wendlandii.

To F. W. Fletcher, Esq., Connemara Hotel.

1 Vanda gigantea.

Plants received.—The following plants were presented to the Society during May:—

From F. W. Fletcher, Esq.

2 Ærides cylindricum.

Seeds issued.—The following seeds were sent out during May:—

To the Economic Botanist, Government Botanic Gardens, Saharanpore.

4 packets of Palm seeds.

Seeds received.—The following seeds were presented to the Society during May:—

From the Director, Botanic Gardens, St. Petersburg.

20 packets of seeds.

From the Director, Botanic Gardens, Paris.

55 packets of seeds.

From the Director, Botanic Gardens, Melbourne.

12 packets of seeds.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

Class A.—C. W. E. Cotton, Esq., I.C.S., S. Tawker, Esq., A. P. Symonds, Esq., A. J. Powell, Esq., and H. L. Padday, Esq.

Class B.—A. H. Sharp, Esq., V. Thirumal Rao, Esq., Rev. C. R. Rintoul, W. Bhashyam Reddiar, Esq., S. Venkatasubba Naidu, Esq., and H. R. Scott, Esq.

Contributions.—The following contributions were made to the Society during the month of June :—

Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon. Vol. III, No. 15, Bud Rot of the Cocoanut Palm, by T. Petch.

The *Gardeners Chronicle*, Vol. XXXIX, Nos. 1,013, 1,014, 1,015 and 1,016. Purchased.

The Bulletin of the Department of Agriculture, West Indies, Vol. IV, Part 4, edited by William Fawcett, Esq., B.SC., etc., Jamaica.

University of California Publications :—Bulletin No. 177.—A New Method of Making Dry Red Wine, by Frederic T. Bioletti.

Curtis's Botanical Magazine, Vol. II, No. 18, edited by the Director, Royal Botanic Gardens, Kew.

The *Journal of the Royal Horticultural Society*, Vol. XXX, edited by G. S. Saunders, F.L.S., F.E S.

Report on the Government Botanical Gardens, Saharanpur and Mussoorie, for the year ending 31st March, 1906.

The *Indian Forester*, Vol. XXXII, No. 4, edited by E. P. Stebbing, Esq., F.L.S., etc.

Inspectie van den Landbouw in West Indië, Bulletin No. 6, edited by Dr. C J. J. van Hall.

A Lavoura.—A Bulletin of the National Society of Agriculture, Brazil.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. V, No. 4, edited by H. N. Ridley, Esq. M.A., F.L.S.

Semi-Annual Report of Messrs. Schimmel & Co., London and New York.

Plants issued.—The following plants were sent out during June :—

To G. H. Krumbiegal, Esq., Baroda.

35 plants of sorts.

Plants received.—The following plants were presented to the Society during June :—

From R. L. Proudlock, Esq., Ootacamund.

1 Mangosteen.

From J. C. Armstrong, Esq., Teynampett.

1 Gmelina Leichardtii.

1 plant, name unknown.

From the Economic Botanist, Government Botanic Gardens, Saharanpur.

1 plant.

Seeds issued.—The following seeds were sent out during June :—

To the Deputy Director of Agriculture, Bombay.

4 packets of various Cotton seeds.

Seeds received.—The following seeds were presented to the Society during June :—

From the Economic Botanist, Government Botanic Gardens, Saharanpur.

1 lb. of Shorea robusta.

From C. A. Barber, Esq., Chepauk.

1 packet of Swietenia Macrophylla.

From Mrs. Gaitskell, Yercaud.

1 packet Hippeastrum.

From the Director, Botanic Gardens, Santiago de las Vegas, Cuba.

36 packets of seeds.

From the Director, Botanic Gardens, St. Louis, U. S. A.

33 packets of seeds.

New Members.—The following gentleman was proposed and elected an ordinary member of the Society :—

Class B.—T. Sreenivas, Esq.

SUB-COMMITTEE MEETING.

At a Sub-Committee Meeting held at the Gardens on the 4th June to enquire into the Society's arrangements for storing seed, the following gentlemen were present :—

Messrs. C. A. Barber and L. E. Kirwan, *Honorary Secretary.*

The Sub-Committte recorded the following recommendations :—

1. That the centre room of the Office buildings, which is to be entirely devoted to seed storing, should be thoroughly cleansed.

2. That the venetians be removed from the window-frames and glass substituted.

3 That in the opening leading from the centre room to the Clerks' room a door be fixed.

4. That only through this door should access to the seed-room be allowed, all other doors being kept permanently locked.

5. That new almirahs be obtained and arranged so that only a portion of the contents, instead of the whole as at present, would be exposed on opening the doors.

SUPERINTENDENT'S NOTES.

The Mahogany tree by No. 1 Planthouse which died during the hot weather of 1905, being in danger of being blown down, was felled and removed to the Nursery side of the Gardens.

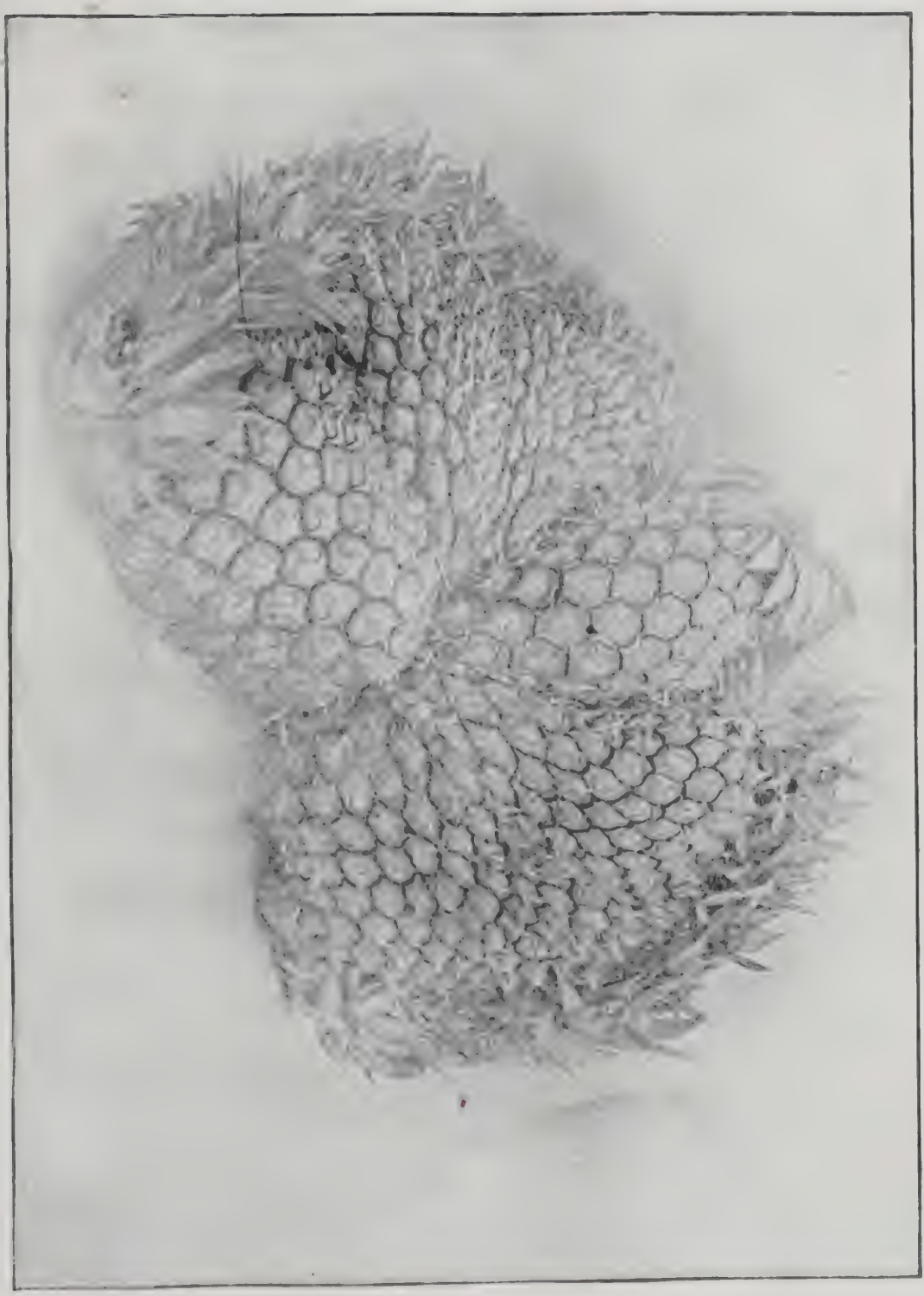
Several Cocoa-nut Palms which died during the same hot season were also removed.

Lodoicea Seychellarum.—Coco-de-Mer, Double or Sea Cocoanut. On the 12th June a rather heavy fall of rain was registered. Two days later it was noticed that the leaves of the only specimen of the above-mentioned plant in the Gardens were turning yellow. It being planted in a hollow near a pond, it is possible that it suffered from too much moisture at its roots.

A Strange Pineapple Fruit.—The illustration of a pine-apple which is published with this issue, represents a remark-able example of syncarpy. It was grown by Mr. W. H. Oakes. The fruit consists of six pineapples borne on one stem. It was in three distinct parts, all being united at their bases. The largest portion consisted of three fruits fused together; another portion consisted of two fruits fused in which the fusion was rather difficult to trace; whilst the remaining portion had the appearance of a distinct fruit. The weight of the whole was about 12 lbs.

An instance of nine strawberries borne on one stem is mentioned in the proceedings of the Ray Society as being very remarkable and allusion is made to similar malformations in the pineapple.

Pineapple Fruitlet Core-Rot.—In May my attention was called to a pineapple which appeared to be diseased in patches and the fruit being but then little more than half ripe I could not account for it. I can find no trace of its having been



noticed in India before, but Mr. Henry Tryon, Entomologist to the Queensland Government, has an exhaustive article in the *Queensland Agricultural Journal*, Vol. 3, Part 6, from which it appears that this affection of the pineapple is by no means uncommon in Southern Queensland, where it occasions sometimes considerable loss to the grower.

The fruit, to judge by external appearances, ripens unevenly. Although its symmetry is preserved, particular segments or groups of segments that remain pale-green occur here and there, whilst the rest of the surface assumes a hue characteristic of ripe fruit. The individual sections of the surface of the fruit, or fruitlet, develop a dark coffee-brown colour denoting decay—an alteration that seems to commence, from external symptoms, at the central portion of the fruitlet and to proceed towards its outer margin. Associated with this pronounced change of colour, there is a more or less conspicuous shrinkage, as decay proceeds. The bracts also are involved in these changes. When, as often happens, several contiguous fruitlets become so affected, the pineapple may present large conspicuous brown patches that may connect with one another all around it, so that a large portion of it may become involved. At first the portion of the fruit that is in this condition preserves its regular contour, but during the progress of the disease, as shrinkage supervenes, deep fissures may arise amid the sections, and occasionally even two or three affected fruitlets may be partly sunken in the more or less extensive pits that thus arise. The affected fruitlets at first exhibit no outward indication of any fungus growth, but in the above-mentioned pits and fissures a green mould will ultimately be noticeable. The tuft of leafy bracts occurring at the top of the fruit presents no abnormal feature.

On cutting the affected pineapple across, it is to be observed that the central axis presents a quite healthy appearance. The same remark applies to the general tissue beyond the immediately affected parts. But the portion underlying the externally altered surface has already become dark-brown and decayed.

This discoloured area sometimes forms a patch continuous with the outside surface of the pine externally, and passes inwards to a varying depth of from $\frac{1}{4}$ inch to $\frac{1}{2}$ inch. The inner border of this area is very clearly defined, though exceedingly irregular. In addition to this, there may occur without any corresponding surface area of decay, and well within the margin, isolated patches of discoloured tissue that vary greatly in size but agree in being restricted to individual sections. So also on cutting

across a fruit that has not as yet developed any external indications of the disease, or but obscure ones only, similar islets of affected tissue are revealed, from which it may be concluded that the malady commences independently, but not simultaneously, in separate fruitlets.

The cause of the disease is a mite belonging to the genus *Tarsonemus*, which is met with not only in the outer cavities of the pineapple fruitlets, but also on the stem of the fruit, as well as deep down between the white bases of the leafy bracts forming the tuft at its free or upper end. The mite probably nowhere occurs in large numbers, but it must be borne in mind that its small size (it would take 149 males placed end on in succession and touching one another to reach the extent of a single inch) and colour are such as to render its detection a matter of more than ordinary difficulty. It apparently habitually shuns the light, and consequently penetrates the innermost recesses accessible. When occurring within the fruit, it commonly, but by no means exclusively, resorts to the depressions—three in number—that are met with around the base of the style at the bottom of the anterior chamber.

With its styliform mandibles it probes the tissue, in order apparently to imbibe the juice that this affords. This action on its part results ordinarily in the appearance of minute brown specks, and no further damage. Such marks are often discernible on the inner wall of the fruitlet cavity that it inhabits. They may be again sometimes met with on the inner faces of the sheathing bases of the leaves. One portion of the fruitlet is very liable to experience injury from its method of feeding when the *Tarsonemus* is within the anterior chamber. This is the loose succulent parenchymatous tissue that is immediately continuous with the thin floor of the chamber, and that forms in proceeding downwards the so-called placental column and placenta of the ovary: especially (1) that part that is beneath the abovementioned three depressions at the base of the style, and (2) the almost open central line (the so-called placental axis of botanists) that is continuous with the narrow channel enclosed by the three conjoined styles that form the pistil. The special mould fungus associated with the diseased condition has been concluded to be a species of *Monilia* and since its spores are often naturally present in the fruitlet cavity, and since they germinate readily in fresh pineapple juice, they can gain access to the tissue at these spots where the *Tarsonemus* mite has been prosecuting its feeding habit. Once established at these seats of injury, the further development of the fungus and the chemical changes that are a consequence of its growth proceed downwards into the tissue along the abovementioned tracts—the lines of least resistance—in espe-

cially suitable tissue, until eventually almost the entire ovarian portion of the fruitlet becomes affected, and the fungus itself develops reproductive organs in the *loculi* or seed cavities, filling these with *hyphæ* and myriads of, for the most part, free spores. Chemical change in the fruit tissue manifests itself, amongst other ways, especially, by the appearance of (1) a dark-brown discolouration that attends the growth of the fungus from the very outset; and by (2) a retardation in the maturation of the fruitlet as a whole (hence the green patches occurring externally on affected pineapples); those special transformations in the constituents of unripe fruit that constitute the ripening process being apparently temporarily inhibited.

Remedies.—As the *Tarsonemus* mites occur throughout the entire pineapple plant, and as when once connected with it the association between the two is perennial, plants that it may be inferred from the condition of their fruit are infested, should be gradually rooted out and burnt, otherwise they may become more and more "diseased." In replacing these, or indeed in starting a new plot or establishing a plantation, suckers derived exclusively from plants in which this malady has not previously been remarked should be employed. As an additional precaution also they should be steeped in a lime and sulphur wash for some hours prior to being placed in the soil, or treated with a carbolic acid wash—such as may be made with Little's Soluble Phenyle—in the same manner.

Financial Statement from April to June, 1906.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
By Balance with Messrs. Spencer & Co., Ltd., on the 31st March, 1906	3,334	11	1				To Salary of the Superintendent, Office and Garden Establishment.				1,387	5	6
,, Do. of Petty Cash on hand on the 31st March, 1906 ..	200	0	0				,, Garden Coolies, Permanent ..	169	14	7			
							,, Do. Temporary ..	89	11	3			
				3,534	11	1					259	9	10
,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0	,, Commission to Superintendent for 1st quarter, 1906 ..	..	..	..	174	14	6
,, Subscription from Members of A Class	581	0	0				,, Purchases of seeds, plants, flowers and fruit trees, etc. ..	..	..	..	113	2	5
,, Subscription from Members of B Class	108	0	0				,, Charges recoverable account ..	..	..	..	571	7	0
				689	0	0	,, Garden requisites including pots, manure, etc.	..	..	..	67	0	0
,, Government Grant for the month of March, 1906	250	0	0				,, Discount on mofussil cheques ..	0	4	0			
,, Government Grant for the month of April, 1906	250	0	0				,, Petty charges including carriage hire, etc.	17	8	2			
,, Government Grant for the month of May, 1906	250	0	0				,, Packing materials including baskets, etc.	24	4	10			
				750	0	0					42	1	0
,, Sales of seeds, plants, flowers and fruit trees, etc. ..	845	14	9				,, Furniture and plant account ..	..	..	..	16	9	11
							,, Books and periodicals account ..	..	..	..	36	5	1
							,, Printing and stationery account ..	..	..	..	256	8	0
							,, Postages, stamps and telegrams account	54	14	0			

.. Sale of Ichthemic guano	..	26	0	0				,, Advertisement charges account	..	54	12	0			
					871	14	9	,, Garden expenses account	..	182	13	10			
,, Out-door work account	..	..	..	..	8	0	9						292	7	10
								,, Ichthemic guano account	..	..	..	..	53	15	7
								,, Red Hills Water-supply account	..	..	..	..	157	6	9
								,, Building account ..	..	..	..	..	82	2	3
								,, Flower Show account ..	..	..	..	..	8	11	0
								,, Repairing Fernery account	..	..	..	..	32	12	0
								,, Travelling expenses to Superintendent account	.. ..	..	..	..	300	0	0
								,, Audit fees account	.. ..	..	..	..	50	0	0
								,, Security of Cashier deposited with Messrs. Arbuthnot & Co.	..	..	..	..	750	0	0
								,, Balance of petty cash on hand on the 30th June, 1906	..	200	0	0			
								,, Balance of general cash on hand with Messrs. Spencer & Co., Ltd., on the 30th June, 1906	..	1,751	3	11			
													1,951	3	11
Total Rupees ..	..	..	..	..	6,603	10	7	Total Rupees ..	..	..	..	..	6,603	10	7

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 12*th July*, 1906.

L. E. KIRWAN,
Honorary Secretary.

Audited and found correct.
E. C. WOODS-SCAWEN,
Auditor.
21*st July*, 1906.

N. SUBRAHMANYAM,
Honorary Treasurer.

Proceedings of the Agri-Horticultural Society of Madras for the 3rd Quarter ending the 30th September, 1906.

There being no business of importance to be transacted no Committee Meeting was held in July.

Contributions.—The following contributions were made to the Society during July:—

A Monograph on Stone-carving in Bengal, by E. B. Havell, Principal, Government School of Art, Calcutta.

Proceedings of the Royal Colonial Institute, Vol. XXXVII, 1905-06, edited by the Secretary.

The Bulletin of the Department of Agriculture, West Indies, Vol. IV, Part 5 and 6, edited by William Fawcett, Esq., B.SC., etc., Jamaica.

The *Gardeners' Chronicle*, Vol. V, Nos. 1013, 1014, 1015 and 1016. Purchased.

The *Experiment Station Record*, Vol. XVII, No. 10, edited by E. W. Allen, PH.D., Assistant Director, U. S. Department of Agriculture.

The *Agricultural News*, Vol. V, Nos. 109 and 110, issued by the Commissioner of Agriculture for the West Indies.

Curtis's Botanical Magazine, Vol. II, No. 19, edited by Sir William T. Thistleton Dyer, K.C.M.G., etc., Late Director, Royal Botanic Gardens, Kew.

The *Indian Forester*, Vol. XXXII, No. 6, edited by E. P Stebbing, Esq., F.L.S., etc.

The *West Indian Bulletin*, Vol. VII, No. 1, issued by the Commissioner of Agriculture, Barbados.

Seeds and Plants received:—The following plants and seeds were presented to the Gardens during July:—

From the Deputy Director of Agriculture, Bombay.

1 packet Cotton seeds.

From the Superintendent, Botanic Gardens, George Town, British Guiana.

22 packets seeds; miscellaneous collection.

From M. Abraham Pandither, Esq., Tanjore.

8 packets of Maize seed.

From N. G. B. Kirwan, Esq., Arabidicool Estate, Chickmaglur.

1¼ lbs. of seeds, *Carica papaya*.

From the Superintendent, State Gardens, Baroda.

A collection of *Nymphæa* bulbs.

From the Forester, Natal Government Forest Nursery, Cedara.

6 packets of seeds; miscellaneous collection.

COMMITTEE MEETING.

At a Committee Meeting held in the Gardens on the 6th August, the following gentlemen were present:—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
C. A. Barber, Esq., F.L.S.
P. F. Fyson, Esq., F.L.S.
The Hon'ble Sir Ralph Benson, I.C.S.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
The Hon'ble Mr. V. G. Lynn.
R. T. Menzies, Esq.
G. Narayanasawmy Chetty, Esq.
C. Sowden, Esq.
The Hon'ble Mr. C. J. Weir, I.C.S.
L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed:—

1. The correspondence with the Registrar of the High Court regarding the Society's bills, Nos. 175 and 41, having been read, that a further reply from the Registrar be awaited.

2. That the Arch supplied by Messrs. Oakes for erection over the main gate be not proceeded with, it being quite unsuitable for the purpose for which it was ordered.

3. That the further alterations in the prize list proposed by the Honorary Secretary be made.

4. That with regard to the sale of the Mahogany tree the Honorary Secretary be requested to discuss the matter with the would-be purchasers.

5. That the following gentlemen be elected members of the Society:—

Class A.—The Hon. Rajah Vasudeva Raja, Valia Nambidi of Kollengode, V. Venkataratnam, Esq., and Major H. Bonham-Carter, R.E.

Class B.—I. S. Muthukumarasawmy Pillai, Esq., F. H. Oakley, Esq., and the Reverend J. K. Miller.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during August:—

The Bulletin of the Department of Agriculture, West Indies, Vol. IV, Part 7, edited by William Fawcett, Esq., B.Sc., etc., Jamaica.

Curtis's Botanical Magazine, Vol. II, No. 20, edited by Sir William T. Thistleton Dyer, K.C.M.G., etc., Late Director, Royal Botanic Gardens, Kew.

The Bulletin of Miscellaneous Information, issued by the Director, Royal Botanic Gardens, Kew.

The *Indian Forester*, Vol. XXXII, No. 7, edited by E. P. Stebbing, Esq., F.L.S., etc.

The *West Indian Bulletin*, Vol. VII, No. 2, and the *Agricultural News*, Vol. V, Nos. 111 and 112, issued by the Commissioner of Agriculture, Barbados.

The *Experiment Station Record*, Vol. XVII, No. 11, edited by E.W. Allen, PH.D., Assistant Director, U. S. Department of Agriculture.

The *Gardeners Chronicle*, Vol. XL, Nos. 117, 1018, 1019 and 1020. Purchased.

Suggestions on the Improvement of Silk Reeling in Bengal, by N. G. Mukerji, M.A., M.R.A.C., etc., Assistant Director of Agriculture, Bengal.

The *Queensland Agricultural Journal*, Vol. XVII, Part 3, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The Annual Report of the Government Botanical Gardens and Parks, the Nilgiris, for the year 1905-06.

Agricultural Bulletin of the Straits and Federated Malay States, Vol. V, Nos. 6 and 7, edited by Messrs. H N. Ridley, M.A., etc., and J. B. Carruthers, F.R.S.E., etc.

The *Tropical Agriculturist* and *Magazine* of the Ceylon Agricultural Society, Vol. XXVII Nos. 1 and 2, edited by J. C. Willis, Esq., D.Sc., F.L.S., etc., Director of the Royal Botanic Gardens, Peradeniya.

Agricultural Journal of India, Vol. I, Part 3, issued by the Agricultural Research Institute, Pusa.

The Annual Report of the Civil Veterinary Department, Bengal, and of the Bengal Veterinary College, for the year 1905-06.

The *Indian Textile* Journal, Vol. XVI, No. 19.

The Annual Report on the Government Horticultural Gardens, Lucknow, for the year 1905-06.

Seeds and Plants received.—The following seeds and plants were presented to the Gardens during August:—

From the Deputy Conservator of Forests, Darrang Division, Tezpur.

5 lbs. of *Ficus elastica* seed.

From the Director, Botanic Station, St. Lucia, West Indies.
6 packets of Palm seeds.

From the Director, Colonial Gardens, Nogent.
2 packets of Palm seeds.

From H. McLeod Playfair, Esq., Mudigere, Kadur District, Mysore State.
1 packet of seed of Moreton Bay Chestnut.

From J. Driver, Esq., Kannivadi Zemindary, Dindigul.
4 packets of Tobacco seed.

From the Conservator of Forests, Pietermaritzburg, Natal.
1 lot of Palm seeds.

COMMITTEE MEETING.

At a Committee Meeting held on the 3rd September the following gentlemen were present:—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
C. A. Barber, Esq., F.L.S.
The Hon'ble Sir Ralph Benson, I.C.S.
A. L. Hannay, Esq., I.C.S.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
G. Narayanasawmy Chetty, Esq.
L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed:—

1. That with reference to the High Court account the proposals made by the Registrar be accepted.

2. That with reference to the dilapidated piece of wall extending some 40 yards eastward from the boundary of the Society's Ornamental Gardens on the Cathedral Road, the Honorary Secretary write to the Collector of Madras to ascertain the ownership thereof.

3. That the following gentlemen be elected members of the Society:—

Class A.—Srimat Rajah Yerlagadda Mallikarjuna Prasada Naidu Bahadur Garu, Rajah of Devarakota and Miss Lodge.

Class B.—Rev. E P. Holton.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during September:—

Memoirs of the Department of Agriculture in India, Botanical Series, Vol. I, No. 4, *Gossypium obtusifolium*, Roxb., by I. H. Burkill, M.A., Officiating Reporter on Economic Products to the Government of India.

The *Agricultural News*, Vol. V, Nos. 113 and 114, issued by the Commissioner of Agriculture for the West Indies.

The *Experiment Station Record*, Vol. XVII, No. 12, edited by E. W. Allen, PH.D., Assistant Director, U. S. Department of Agriculture.

The *Gardeners' Chronicle*, Vol. XL, Nos. 1021, 1022, 1023 and 1024. Purchased.

The *Indian Forester*, Vol. XXXII, No. 8, edited by E. P. Stebbing, Esq., F.L.S., etc.

The *West Indian Bulletin*, Vol. VII, No. 2, issued by the Commissioner of Agriculture, Barbados.

Curtis's Botanical Magazine, Vol. II, No. 21, edited by Sir William T. Thiselton Dyer, K.C.M.G., etc., Late Director, Royal Botanic Gardens, Kew.

The Bulletin of Miscellaneous Information, issued by the Director, Royal Botanic Gardens, Kew.

The Bulletin of the Department of Agriculture, West Indies, Vol. IV, Part 8, edited by William Fawcett, Esq., B.SC., etc., Jamaica.

The Agricultural Ledger Series, Bulletin No. 14, *Costus Speciosus*, edited by Sir George Watt, C.I.E., Economic Reporter to the Government of India.

The Annual Report of the Government Gardens and Parks in Mysore for the official year 1905-06.

The *Queensland Agricultural Journal*, Vol XVII, Part 4, edited by A. J. Boyd, Esq., F.R.G.S.Q.

Seeds and Plants received.—The following seeds and plants were presented to the Gardens during September :—

From J. Cameron, Esq., Bangalore.

2 plants of *Ficus Krishna*.

From the Director, Botanic Gardens, Jamaica.

1 packet of seed of *Copernica cerifera*.

From the Superintendent, Guindy Park.

31 plants of sorts.

Plants issued.—The following plants were sent out during September :—

To the Superintendent, Victoria Gardens, Bombay.

2 plants of *Nipa fruticans*.

To J. H. Stephen, Esq., Agri-Horticultural Society of India, Calcutta.

22 plants of *Hibiscus*.

To the Superintendent, Guindy Park.

46 plants of sorts.

THE SEED SUB-COMMITTEE.

The Honorary Secretary met Mr. P. F. Fyson and Mr. C. A. Barber at the Gardens on the 21st August and again on the 3rd September.

The seed room being insufficiently ventilated, it was decided:

1. That holes should be made in the walls as high up as possible, and that these should be covered with wire gauze to prevent the ingress of insects.

2. That holes should also be made in the top panels of the doors and covered with gauze, and that the top panes of glass in the windows should be removed and gauze substituted.

3. That augur holes should be made in suitable places in the almyrahs and covered with gauze, thereby allowing a free circulation of air amongst the seeds.

SUPERINTENDENT'S NOTES.

Lodoicea Seychellarum.—In my notes for the 2nd quarter of this year I mentioned that this palm had an unhealthy appearance, due as I presumed to excessive moisture at its roots.

It has however since died and is a great loss to the Gardens, as it was a source of especial interest to visitors, because it was unique in having been the first seed to have been successfully germinated in Madras.

A few notes on the history of the treatment of this palm might serve as a guide, and will deter others—wishing to grow this plant successfully—from making a similar mistake.

The germination of the seed has already been recorded in the proceedings for the third quarter, 1905.

When it was thought that the *hypocotyle* was sufficiently vigorous to allow of the seed being placed in its permanent position, a site was selected at the head of the Vizianagram pond.

Before definitely deciding upon the position of the site, the habit, conditions and characteristics of the plant were carefully studied, as well as the experience obtained at the Royal Botanic Gardens, Kew, where a few years ago a seed of this palm was successfully germinated.

The plant was grown in a pot which was partially submerged in water. On the plant attaining too large a size for its original position, it was removed to a drier spot where it eventually died. This untimely end was presumed to be due to its removal to a too dry position.

A photograph in the Society's office shows this palm growing in its native habitat on the banks of lagoons; and this was taken as a further guide in the selection of the site. To obtain the supposed required conditions for the successful growth of the plant a small mound was made at the head of the pond sufficiently high to insure the whole of the stem being out of the water. The mound was made of old potting soil, the centre being composed principally of sand. The seed was placed in position and the *hypocotyle* which was expected to travel horizontally, as it does in its native habitat, struck down vertically and in consequence the roots were developed at a considerably lower level than was anticipated. It was feared that the effects of this deep-rooting would be fatal, so something had to be done. Either it was necessary to remove the plant to another position or to isolate it from the standing water by filling in the whole of the head of the pond. The latter plan was adopted, as it was known that this palm is very sensitive to being transplanted.

Unfortunately, as was reported in the 2nd quarter's Proceedings of this year, there was a heavy rainfall in June which completely swamped the plant, the level of the pond rising considerably above its normal height. The roots at this stage were far too young and tender to withstand this water-logging, and on the plant being lifted the roots were found to be in an advanced stage of decay.

It may be mentioned that a small circular tatty house had been erected over the plant in March to protect the leaves from the burning rays of the sun, as the spot where it had been planted was in the open; and some people believe that the death of the palm must be attributed to this erection.

Boundary Wall.—On the Mount Road side of the Ornamental Gardens the boundary wall has been completed and the western gate which was never used has been done away with. A path leading thereto which then became a *cul de sac* was, after being filled in with good soil, converted into a border and planted with a variety of shrubs.

Lawns.—The foundation soil of the new boundary wall was utilised in filling up hollows and generally levelling the lawns on the north side of the gardens beyond the water-tower. This has much improved the general appearance of the lawns, and has at the same time supplied nourishment to places where it was much needed.

L. E. KIRWAN,
Honorary Secretary.

Financial Statement from July to September, 1906.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
By Balance with Messrs. Spencer & Co., Ltd., on the 30th June, 1906	1,751	3	11				To Salary of the Superintendent, Office and Garden Establishments	..	..	..	1,336	7	4
,, Do. of Petty Cash on hand on the 30th June, 1906 ..	200	0	0				,, Garden Coolies, Permanent ..	171	9	6			
							,, Do. Temporary ..	143	6	9			
				1,951	3	11					315	0	3
,, Security of Cashier S. Thathachary, deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0	,, Commission to Superintendent for the 2nd quarter, 1906 ..	..	..	..	24	15	3
							,, Purchases of seeds, plants, flowers and fruit trees, etc. ..	..	..	..	1,690	3	10
,, Subscription from Members, A Class	665	0	0				,, Charges recoverable account ..	..	..	..	545	4	0
,, Subscription from Members, B Class	177	0	0				,, Garden requisites including pots, manure, etc.	..	..	..	38	13	6
				842	0	0	,, Discount on mofussil cheques ..	0	12	0			
,, Government Grant for the month of June, 1906	250	0	0				,, Petty charges including carriage hire, etc.	16	9	3			
,, Government Grant for the month of July, 1906	250	0	0				,, Packing materials including baskets, etc.	33	5	0			
,, Government Grant for the month of August, 1906	250	0	0								50	10	3
							,, Furniture and plant account ..	..	..	..	5	14	7
,, Government Extra Grant for the year, 1906	500	0	9				,, Books and periodicals account ..	..	..	..	1	12	0
							,, Printing and stationery account ..	..	..	..	152	8	6
				1,250	0	0	,, Postages, stamps and telegrams account	61	9	6			

,, Sales of seeds, plants, flowers and fruit trees, etc. ..	1,562	1	9				,, Advertisement charges account ..	72	8	9			
,, Sale of Ichthemic guano ..	13	0	0				,, Garden expenses account ..	134	4	3			
				1,575	1	9					268	6	6
,, Interest on Cashier's Security @ 5 % per annum received from Messrs. Arbuthnot & Co. ..	..	..	..	37	8	0	,, Building account	..	..	..	22	12	0
							,, Flower Show account	..	..	..	286	0	0
							,, House, Water and Lighting Taxes.	..	..	..	35	2	10
							,, Repairing Fernery account ..	..	..	..	7	1	0
							,, Audit fees account	..	..	..	50	0	0
							,, Interest on Cashier's Security received from Messrs. Arbuthnot & Co. and paid to Cashier ..	..	..	..	37	8	0
							,, Security of Cashier deposited with Messrs. Arbuthnot & Co. ..	..	..	..	750	0	0
							,, Balance of Petty Cash on hand on the 30th September, 1906 ..	200	0	0			
							,, Balance of general cash on hand deposited with Messrs. Spencer & Co., Ld., on the 30th Sept., 1906.	587	5	10			
											787	5	10
Total Rupees ..	..	..	..	6,405	13	8	Total Rupees ..	..	..	..	6,405	13	8

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 13*th October*, 1906.

L. E. KIRWAN,
Honorary Secretary.

Audited and found correct.
E. C. WOODS-SCAWEN,
Auditor.
30*th October*, 1906.

N. SUBRAHMANYAM,
Honorary Treasurer.

Proceedings of the Agri-Horticultural Society of Madras for the 4th Quarter ending the 31st December, 1906.

COMMITTEE MEETING.

At a Committee Meeting held on the 1st October, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
C. A. Barber, Esq., F.L.S.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
The Hon'ble Mr V. G. Lynn, Esq.
C. Sowden, Esq.
L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed :—

1 That with regard to the boundary wall no steps be taken to repair what is outside the Society's property, but that the Secretary request the Government Architect to build the wall between the Society's gardens and the next property as far as he can with the funds available.

2. That at every Committee Meeting a statement of outstanding accounts be laid on the table.

3. That no orders for up-country constituents be executed for amounts exceeding Rs. 20 without the Society being first placed in funds.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during October :—

The *Indian Textile Journal*, Vol. XVII, No. 193.

Curtis's Botanical Magazine, Vol. II, No. 22, edited by Sir William T. Thistleton Dyer, K.C.M.G., etc.

The *Tropical Agriculturist* and *Magazine* of the Ceylon Agricultural Society, Vol. XXVII, Nos. 3 and 4, edited by J. C. Willis, Esq., D.SC., F.L.S., etc., Director of the Royal Botanic Gardens, Peradeniya.

The *Gardeners Chronicle*, Vol. XXXIX, Nos. 1025, 1026, 1027 and 1028. Purchased.

The *Queensland Agricultural Journal*, Vol. XVI, Part 5, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. XVIII, No. 8, edited by H. N. Ridley, Esq, M.A., F.L.S.

The *Indian Forester*, Vol. XXXII, No 10, edited by E. P. Stebbing, Esq., F.L.S., etc.

The *Agricultural News*, Vol. 5. Nos 115 and 116, issued by the Imperial Department of Agriculture for the West Indies.

Forest Bulletin, No. 6. Memorandum on Mechanical Tests of some Indian Trees, by W. H. Everett, Esq., B.A., etc.

The following publications of the Central Agricultural Committee, Madras:—

Report of the 6th Meeting of the Committee.

Circular No. 13. Some Useful Foreign Implements at the Nagpur Farm.

Circular No. 14. Transplanting in Paddy Cultivation.

Circular No. 15. Flax. Hints and Suggestions on the Profitable Cultivation and Preparation of Flax in India.

Bulletin No. 4. The Use of Prickly Pear as Fodder.

Plants and Seeds issued.—The following plants and seeds were sent out during October :—

To the Director of Agriculture, Botanic Gardens, Aburi, Gold Coast.

5 packets of Palm seeds

To the Director, Botanic Gardens, Paris, France.

3 packets of Palm seeds.

To the Director, Botanic Gardens, Buenos Ayres.

4 packets of Palm seeds.

To the Curator, Botanic Station, Old Calabar, Gold Coast.

8 packets of Palm seeds.

To the Superintendent, Botanic and Forest Department, Hongkong.

4 packets of Palm seeds.

To the Director, Public Gardens and Plantations, Jamaica, West Indies.

6 packets of Palm seeds.

To the Acting Superintendent, Botanic Station, Grenada, West Indies.

9 packets of Palm seeds.

To the Director, Imperial Botanic Gardens, St. Petersburg Russia.

2 packets of Palm seeds.

To the Curator, Botanic Gardens, Seychelles.

4 packets of Palm seeds.

To the Agricultural Superintendent, Botanic Station, St. Vincent, West Indies.

4 packets of Palm seeds.

To the Curator, Botanic Gardens, Dominica, West Indies.

4 packets of Palm seeds.

To C. J. Hay Ellis, Esq., Superintendent, People's Park, Madras.

6 Hevea Brasiliensis (Pará rubber).

Seeds received.—The following seeds were presented to the Society during October:—

From Lieut. E. Parbury, R.A., Adyar, Madras.

13 packets of Japanese seeds.

From the Director, Botanic Gardens, Escuintla, Chiapas, Mexico.

1,000 seeds of Castilloa lactiflua.

From P. F. Fyson, Esq., Madras.

3 packets of seed of Spence cotton.

New Members.—The following were proposed and elected Ordinary Members of the Society:—

Class A.—Lt.-Col. J. A. Wyllie, I.A.

Class B.—Tambisamy Mudaliar, Esq., H. B. Peirce, Esq., and H. E. Clerk, Esq.

COMMITTEE MEETING.

At a Committee Meeting held on the 5th November, the following gentlemen were present:—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
C. A. Barber, Esq., F.L.S.
The Hon'ble Sir Ralph Benson, I.C.S.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
The Hon'ble Mr. V. G. Lynn.
R. T. Menzies, Esq.
G. Narayanasawmy Chetty, Esq.
C. Sowden, Esq.
Dewan Bahadur N. Subrahmanyam (*Honorary Treasurer*).
L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed:—

1. That with reference to the wall to be built according to the Resolution passed at the last Meeting of the Committee, the Government Architect be asked to begin operations from the Cathedral Road.

2. That regarding Mr. Narayanasawmy Chetty's offer to give a Silver Medal for competition at the next Show, the same be offered for the best foliage plant (excluding ferns), to be exhibited separately.

3. That Mr. Subrahmanyam be requested to take steps to collect the outstanding accounts.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during November:—

The *Indian Forester*, Vol. XXXII, No. 11, edited by E. P. Stebbing, Esq., F.L.S., etc.

The *Gardeners Chronicle*, Vol. XXXIX, Nos. 1029. 1030, 1031 and 1032. Purchased.

The *Tropical Agriculturist* and *Magazine* of the Ceylon Agricultural Society, Vol. XXVII, No. 5, edited by J. C. Willis, Esq., D.SC., F.L S., etc., Director of the Royal Botanic Gardens, Peradeniya

The *Queensland Agricultural Journal*, Vol. XIV, Part 6, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. VIII, No. 9, edited by Messrs. H. N. Ridley, Esq., M.A., F.L.S., and J. B. Carruthers, F.L S., etc.

Proceedings of the Agricultural Conference held at Bombay, February 1906.

The Season and Crop Report of Bengal for the year 1905-06.

The Land Records Administration Report of Bengal for the year ending 30th June, 1906.

The Journal of the Agri-Horticultural Society of Western India, December 1905 to March 1906, inclusive.

The *Agricultural Journal* of the Royal Botanic Gardens, Ceylon. The following circulars:—

Vol. 3, No. 17. Root-disease of Hevea Brasiliensis, by Mr. T. Petch.

,, 3, No. 18, Cotton, by Messrs. C. J. C. Mee and J. C. Willis.

The 27th Annual Report of the South Australian Zoologoical and Acclimatisation Society.

The Experimental Farms of Ottawa for the year 1905.

The Bulletin of the National Society of Agriculture, Brazil, Vol. X, Nos. 3 and 5.

Verslag Omtrent de Te Buitenzorg Grivestig-de Technische Afdeelingen van het, Department van Landbouw.

Curtis's Botanical Magazine, Vol. II, No. 23, edited by Sir William T. Thistleton-Dyer, K.C.M.G., etc., late Director, Royal Botanic Gardens, Kew.

The Agricultural Ledger Series.—

Bulletin No 5. *Crotolaria Juncea.*

,, No. 93. *Phœnix dactilifera*, issued by Sir George Watt, C.I.E., Economic Reporter to the Government of India.

Records of the Geological Survey of India, Vol. XXXIV, Part 1, Government of Madras, Revenue Department, G. O. No. 998, Indian Insect Pests.

La Tribune Horticole, Vol. I, No. 22.

The Kew *Bulletin* of Miscellaneous Information.

Acta Horti Petropolitani, Tomus XXVI, Fasciculus I.

Experiment Station Record, Vol. XVII, Index, and Vol. XVIII, No. I, issued by the U. S. Department of Agriculture.

Forest Bulletin, No. 4. *Ficus elastica*, its natural growth and artificial propagation, by E. M. Coventry, Esq.

The Bulletin of the Department of Agriculture, Jamaica, Vol. IV, Part 9, edited by W. Fawcett, Esq., B.SC., etc.

The Bulletin of the Imperial Institute, Vol. IV, No. 2, edited by Prof. Wyndham R. Dunstan, Esq., M.A., etc.

The Prospectus of the Indian Industrial and Agricultural Exhibition, Calcutta, 1906.

The following Government of Madras Publications :—

Bulletin No. 56. The Varieties of Cultivated Pepper, by C. A. Barber, Esq., M.A., etc.

Report of the Agricultural Department, Bengal, for the period of 15 months from the 1st April, 1905 to the 30th June, 1906.

The *Indian Textile Journal*, Vol. XVII, No. 194.

The *Agricultural News*, Vol. V, Nos. 117 and 118, issued by the Imperial Department of Agriculture for the West Indies.

Plants issued.—The following plants were sent out during November :—

To Messrs. Moonesawmy & Sons, Lal Bagh Road, Bangalore.

24 Plants, a miscellaneous collection.

To J. Cameron, Esq., Superintendent, Public Gardens and Parks, Mysore.

21 Tomato plants in 5 varieties.

Plants and seeds received.—The following plants and seeds were presented to the Society during November :—

From R. H. A. Johnston, Esq., Madras Survey, St. Thomas' Mount.

1 tin of seeds, Barringtonia acutangula.

From Messrs. Venkatasawmy & Sons, Bangalore.

47 plants and 100 Chrysanthemum cuttings.

From Messrs. Moonesawmy & Sons, Bangalore.

7 plants and Chrysanthemum cuttings.

From the Director, Botanic Gardens, St. Lucia, West Indies.

5 packets of seeds.

From Marshall Reid, Esq., C.I.E., Madras Club.

48 plants, miscellaneous collection.

From J. Cameron, Esq., Superintendent, Public Gardens and Parks, Mysore.

69 plants, a miscellaneous collection.

From C. Michie Smith, Esq., Kodaikanal.

1 packet of Dahlia seed.

From W. Want, Esq., Head Gardener to Sir Fredrick Wigan, *Bart.*, Clare Lawn, East Sheen, Surrey, England.

36 Begonia Rex plants, many of them new to Madras.

From the Director, Public Gardens, Jamaica, West Indies.

5 packets of Palm seeds.

From V. Bashyam Reddiar, Esq., Cuddalore.

400 seeds, Agave Americana, syn., lurida.

From L. E. Kirwan, Esq.

8 Varieties of New Tomatoes from the Royal Horticultural Society.

A collection of Orchids from Malabar.

New Members.—The following were proposed and elected ordinary members of the Society :—

Class A.—R. Narayana Iyer, Esq., Mrs. C. S. Vaughan and Mr. Justice L. C. Miller, I.C.S.

Class B.—Badam Krishna Row, Esq.

COMMITTEE MEETING.

At a Committee Meeting held on the 3rd December, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
R. T. Menzies, Esq.
P. F. Fyson, Esq., F.L.S.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
The Hon'ble Mr. V. G. Lynn.
G. Narayanasawwy Chetty, Esq.
Dewan Bahadur N. Subrahmanyam (*Honorary Treasurer*).
L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed :—

1. The Committee places on record its great regret at the death of Mr. T. Manickam, who was Head Maistry in these gardens for several years and served in the gardens in various capacities for a period of 35 years. It would further place on record its high appreciation of his many years of devoted service to the Society and desires to convey to the members of his family its condolence in this their sad bereavement.

2. That Mr. Houghton be asked to draft a fresh set of rules to be submitted with a copy of the old rules to the Committee.

3. That Mr. Sowden's resignation be accepted with regret, and that Mr. H. A. B. Vernon be asked to accept the vacancy.

4. That Mr. Harris's offer for the purchase of the overarch supplied by Messrs. Oakes & Co. be accepted.

5. That with reference to the Resolution passed in Committee on the 5th November, the Government Architect be asked to begin operations on the southern boundary of the Nursery Gardens from the Cathedral road.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during December :—

The Report of the Agricultural Stations of the United Provinces of Agra and Oudh for the year ending the 30th June, 1906.

The Transvaal Agricultural Journal, Vol. V, No. 17, issued by the Agricultural Department.

The Report on the Operations of the Department of Agriculture, Madras Presidency, for the official year 1905-06.

The *Indian Textile Journal*, Vol. XVII, No. 195.

The following Government of Madras Publications :—

G. O. No. 979. Palm Disease in the Godavari.

G. O. No. 1013. Camphor.

The Agricultural Research Institute, Pusa, Bulletin No. 3. The Extension of Jute Cultivation in India, by R. S. Finlow, B.SC., etc.

The Annual Report of the Gardens of H. H. the Maharana Fatch Singhji Bahadur, G.C.S.I., of Udaipur, Meywar, for the year 1905-06.

The Season and Crop Report of the Central Provinces and Berar for the year 1905-06.

The Flora of the Presidency of Bombay, Vol. II, Part 3. Verbenaceæ to Euphorbiaceæ, by Theodore Cook, C.I.E., etc.

The *Agricultural News*, Vol. V, Nos. 119 and 120.

The following pamphlets issued by the Imperial Department of Agriculture for the West Indies :—

Series No. 41. Tobago, Hints to Settlers.

,, No. 42. Summary of the Results of Manurial Experiments with Sugarcane in the Leeward Islands.

The *West Indian Bulletin*, Vol. VII, No. 3, issued by the Commissioner of Agriculture, Barbados.

Curtis's Botanical Magazine, Vol. II, No. 24, edited by Sir William T. Thistleton-Dyer, K.C.M.G., etc., late Director, Royal Botanic Gardens, Kew

A Catalogue of Plants in the Botanic Gardens, Aburi, by A. E Evans, Esq

The *Gardeners Chronicle*, Vol. XL, Nos. 1033, 1034, 1034, 1035 and 1036. Purchased.

Agricultural Ledger Series :—

No. 95, *Acacia Catechu* (Cutch).

No. 96, *Psophocarpus tetragonolobus* (Goa bean).

No. 97, *Cochlospermum Gossypium.*

No. 8. General Index, 1900-1905.

The Bulletin of the Imperial Institute, Vol. IV. No. 3, edited by Prof. Wyndham R. Dunstan, M.A., etc.

The *Queensland Agriculture Journal*, Vol XVII, Part 5, edited by A. J. Boyd, F.R.G.S.Q.

The *Tropical Agriculturist* and *Magazine* of the Ceylon Agricultural Society, Vol. XXVII, No. 6, edited by J. C. Willis, Esq., M.A., F.L.S., etc., Director, Royal Botanic Gardens. Peradeniya.

The following publications from the Bombay Department of Agriculture :—

Bulletin No. 27, Rice Grasshoppers, by Messrs. J. B. Knight and R. M. Dixon.

Bulletin No. 28. Date Palm, by F. Fletcher, Esq., M.A., etc.

Annual Report for the year 1905-06.

Plants issued.—The following plants were sent out during December :—

To J. Cameron, Esq., Superintendent, Public Gardens and Parks, Mysore.

4 plants Brownea coccinea.

Plants and Seeds received.—The following plants and seeds were received during December :—

From Messrs. H. Horton & Co., Sydney, New South Wales.

1 packet of seed of *Paspalum dilatatum.*

From Messrs. L. R. Russell, Nurseryman, Richmond Surrey.

1 *Alocasia Watsoniana.*
1 *Maranta muroglyphira.*
1 *Do. fascata.*
1 *Agave ferox.*
1 *Dipladenia Boliviensis.*
1 *Aralia leptophylla.*
1 *Do. elegantissima.*
1 *Do. Veitchii.*
1 *Do. gracillima.*
2 *Do. reticulata.*
1 *Jasminum primulinum.*
1 *Rhodia Japonica variegata.*
1 *Bouganvillea Mad, Chuttleworthi.*
1 *Ceanothus Veitchianus.*
1 *Do. Gloire de Versailles.*
1 *Do. Fenderlerii.*
1 *Do. dentatus.*
1 *Do. rigidus.*
1 *Arundinaria nitida.*
1 *Do. Heidsii gramineæ*
1 *Do. Falconerii.*
1 *Do. nobilis.*
1 *Tillandsia Zahnii.*
1 *Croton Russelliana.*
1 *Manettia bicolor.*
1 *Ficus radicans, variegata.*
1 *Eleagnus pungens.*
1 *Do. Japonica variegata.*
1 *Do. Simoni do.*
1 *Do. Crippsii aurea.*
1 *Do. picta aurea.*
1 *Do. glabra aurea.*
1 *Do. pungens variegata.*
1 *Do. macrophylla.*
1 *Eranthemum Lindini.*
1 *Polygonium multiflorum.*
1 *Do. Baldschuranicus.*
1 *Plumbago coccinea (improved).*
1 *Bambusa quadrangularis.*
1 *Do. palmata.*
1 *Do. Alphonse Karri.*
1 *Tamarix Germanica.*
1 *Do. Japonica plumosa.*

From J. F. MacLeod, Manager, Dover House, Roehampton Surrey.

1 *Davallia Fijiensis,*
1 *Do. do. magnifica.*
1 *Do. do. robusta.*
1 *Davallia Fijiensis, elegans.*
1 *Do. Mooreana.*

From Col. D. Prain, Director, Royal Botanic Gardens, Kew.

1 *Aphelandra nitens*
1 *Uganda Sapotaceous tree.*
2 *Do. Rubiaceous shrub.*
1 *Erythroxylon Coca, var., nova granatense.*
1 *Do. ovatum.*
1 *Do. Coca, var., spruceanum.*
1 *Musa Buchanani.*
1 *Do. Ornata rosea.*
1 *Do. Martinii.*
2 *Coffee var. Costa Rica.*
1 *Tabernæmontana Barteri.*
1 *Arenga Aping.*
1 *Strychnos Mackeni.*
1 *Clitandra lacourtiana.*
1 *Paullinia Barbadensis.*
1 *Cephælis Ipecachuanha.*
1 *Piper chaba.*
1 *Clerodendron capense.*
1 *Mammea Americana.*
1 *Vanilla lutescens.*
1 *Ardisia Pickeringia.*
1 *Mascarenhasia elastica.*
1 *Geonoma Schottiana.*
1 *Heteraspatha elata.*
1 *Cocos Yatay.*
1 *Mauritia flexuosa.*
2 *Podocarpus milangiana.*
1 *Sarcocephalus Russegeri.*
1 *Sabal glauscesens.*
1 *Capparis Jamaicensis.*

From W. Fawcett, Esq , Director, Public Gardens and Parks, Jamaica.

2 packets of Palm seeds.

From the Director, Imperial Botanic Gardens, St. Petersburg.

36 packets of seeds.

From C. A. Barber, Esq., Government Botanist, Madras.

300 seeds of Abyssinian coffee.

New Members.—The following were proposed and elected ordinary members of the Society:—

Class A.—E. G. Marriott, Esq.

Class B.—Vengail K. Raman Nayama, Esq.

SUPERINTENDENT'S NOTES.

Coffee Experiments.—The following correspondence is in reference to a sample of coffee fruit sent to Prof. Wyndham Dunstan, Director of the Imperial Institute, London, for comparative analysis by the Honorary Secretary.

1. Letter from the Agri-Horticultural Society, No. 785, dated 11th August, 1904.

I am sending you by this post a sample of coffee grown on one of the oldest estates in Mysore, *viz.*, Arabidecool, in the Kadur District, in the hope that you will be able to have it analysed. The deterioration of the quality of coffee grown in Mysore and South India according to reports received from London Agents in recent years has been very marked, and the planters in many cases incur considerable loss in consequence.

They are quite unable to account for this deterioration and so far they have received little scientific advice. Dr. Lehmann, the Agricultural Chemist to the Government of Mysore, last year made some experiments, but, so far, no definite results have been obtained. The sample I send you is particularly interesting because it is from an estate which some forty years ago obtained the best prices in the market. The last crop, however, from which the sample sent is taken, obtained nearly the worst, *viz.*, an all-round average of 52*s.* per cwt. The estate in question is to be highly manured within the next few weeks with a complete manure, with a view to improving both the yield and the quality, and if, as is hoped, its produce obtains very much better prices in the London market, the analysis between this year's crop—sample of which is now sent—and next year's crop, will produce a most interesting and instructive comparison. Should you be able to get the sample analysed I will arrange to have another sent a year or so hence when the effects of the manure becomes apparent.

2. Letter from the Director, Imperial Institute, London, No. 695/22, dated 5th November, 1905.

In your letter No. 785 of the 11th August, 1904, forwarding a sample of coffee grown on the Arabidecool Estate in the Kadur District of Mysore, you stated that the soil of the estate was shortly to be thoroughly manured and that a fresh sample of coffee of the next season's growth would be sent to the Imperial Institute for comparison with the former specimen.

I should be glad to be informed what success has attended the experiments that have been made and to receive for examination a sample of this year's crop.

3. Letter from the Agri-Horticultural Society, No. 1872, dated 6th December, 1905.

I beg to acknowledge your letter of the 8th ultimo regarding a sample of coffee grown on the Arabidecool Estate in the Kadur District of Mysore and sent to you from this office on the 11th August, 1904.

The soil of this estate was duly manured in October-November, 1904, with a mixture of basic slag, saltpetre and poonac and with remarkably good effect on the appearance of the Estate and the yield. The crop now about to be gathered promises to be a very good one and I shall be glad to send you a sample for examination in about six week's time.

A comparison between these two samples will provide coffee planters with most interesting data.

4. Letter from the Director, Imperial Institute, London, No. 428/30, dated 31st October, 1906.

I beg to forward a report on the results of the examination of the two samples of coffee from the Arabidecool Estate in Mysore, which are referred to in your letters, No. 785, dated the 11th August, 1904, and No. 1872, dated the 6th December, 1905.

The comparative examination of the two samples has shown that the manurial treatment has produced a slight increase in the size and weight of the beans and in the amount of alkaloid present.

It will, however, be necessary to continue experiments and obtain further data before any definite conclusions can be drawn.

REPORT ON COFFEE FROM THE ARABIDECOOL ESTATE, KADUR DISTRICT, MYSORE.

A sample of coffee beans was received at the Imperial Institute in 1904, from the Secretary of the Agri-Horticultural Society, Teynampett, Madras, with a letter dated the 11th August, 1904. It was stated that the coffee was grown on the Arabidecool Estate,

Kadur District, Mysore, an estate which 10 years ago produced coffee that obtained the highest prices, whereas the present prices are nearly the lowest. A second sample from the same Estate, grown during the season 1905-06, was received in March, 1906, and is referred to in a second letter dated the 6th December, 1905. In the interval the soil of the estate had been manured with a mixture of basic slag, saltpetre and "poonac" with the result that a remarkably good effect was noticed both in the appearance of the plants and in the yield of coffee. It was desired, therefore, to have a comparative examination of the two samples of coffee with the object of ascertaining the effect of the manurial treatment.

DESCRIPTION OF SAMPLES.

The two samples, which weighed 213 and 450 grams respectively, were similar in appearance. The second sample, grown after the manuring, was a little darker in colour and the beans were rather more regular in size.

RESULTS OF EXAMINATION.

The two samples were submitted to chemical examination and the following table shows their composition :—

	Beans grown in 1904 previous to the manuring. Per cent.	Beans grown in 1905-06 subsequent to the manuring. Per cent.
Moisture	9·17	9·28
Total alkaloid, principally caffeine.	1·22	1·46
Albuminoids	10·46	9·87
	calculated from albuminoid nitrogen 1·68	calculated from albuminoid nitrogen 1·58
Other nitrogenous substances ..	1·28	0·81
Fat	11·36	11·53
Fibre	21·60	21·80
Ash	3·86	3·72
Other non-nitrogenous substances.	41·05	41.53

The specific gravity of the beans of the first sample, *viz.*, that grown before the manuring, was found to be 1·22, and of the second sample, *viz.*, that grown after the manuring, 1·25. The average weight of the beans composing the first sample was 0·156 gram and of the second sample 0·180 gram. The number of beans required to fill a 50 cc. cylinder was 222 in the case of the first sample and 200 in the case of the second sample, showing that the average size of the beans had increased.

COMMERCIAL VALUATION.

Messrs. T. H. Allan & Co., through whom the second sample of coffee was received, have furnished the following particulars regarding its commercial valuation. The market description of the coffee was "Low middling greyish-green, rough, mixed, some foxy and faded." It was valued at 56*s.* per hundredweight in bond and it realised 55*s.* The average price obtained for the previous year's crop was stated to be 52*s.*, so that a slight improvement in the value has occurred. This, however, may be partially due to market fluctuations.

CONCLUSIONS.

It is, perhaps, unsafe to draw definite conclusions in this matter so soon after the manurial treatment. The examination of the next crop will furnish more trustworthy information. It is, however, clear that the manuring of the estate has had the effect of producing somewhat larger and heavier beans containing a rather higher percentage of alkaloid. As regards further treatment of the soil it should be noted that some laterite soils of Southern India are deficient in lime, and there is reason to believe that a more abundant supply of this ingredient would be beneficial to the soil of the coffee plantations.

31*st October*, 1906. WYNDHAM R. DUNSTAN

Dalbergia lanceolaria.—The only specimen of this tree in the gardens, which was growing close to the oval tank in the south-east corner of the gardens, was blown down during the small cyclone in December. Mr. J. Cameron in his book on the Forest trees of Mysore and Coorg thus describes this species;—"A large tree of the deciduous forests, flowering in March and ripening its fruits in June. Very attractive while in leaf, and worthy of a central place in ornamental gardens. Wood whitish, heavy, weighing 62 lbs. per cubic foot, but not very durable, although it is said to be used for building in some parts of India. Medicinal properties are attributed to the root and bark, as also to an oil which is expressed from the seed. The species can be propagated from seeds, and grows well in garden, forest, or loamy soils. A highly ornamental tree, although bare of leaf for rather a long period."

The specimen in the gardens had a large hollow in the trunk close to its base which had no doubt been caused by people removing the bark for medicinal purposes, the wound thus caused, setting up a canker which worked its way into the centre of the trunk. It was owing to this that the tree came down.

Swietenia Mahogani.—In the illustration on the opposite page the large tree shown is the Mahogany which was removed in May last year. It was one of the original plants introduced from Calcutta in 1837, and was, therefore, about 70 years old.

Corypha Umbraculifera.—This palm which has been previously mentioned as having flowered is now bearing a large quantity of fruits. These will be ripe towards the end of February, and will be distributed free to any members or Botanic or Public Gardens applying for them.

Great difficulty is being experienced in keeping off the flying-foxes which are very partial to the fleshy covering of the fruits. Lighted lanterns slung up in between the branches have been found to be the best method of warding them off.

Financial Statement from October to December, 1906.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
By Balance with Messrs. Spencer & Co., Ltd., on the 30th September, 1906 ..	587	5	10				To Salary of the Superintendent, Office and Garden Establishment..	..	..	..	1,205	5	4
,, Do. of Petty Cash on hand on the 30th September, 1906.	200	0	0				,, Garden Coolies, Permanent ..	172	10	10			
							,, Do. Temporary ..	197	9	7			
				787	5	10					370	4	5
,, Security of Cashier S. Thathachary, deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0	,, Commission to Superintendent for the 3rd quarter, 1906 ..	..	..	..	46	12	9
							,, Purchases of seeds, plants, flowers, fruit trees, etc. ..	..	..	..	1,253	4	9
,, Subscription from Members, A Class	546	0	0				,, Charges recoverable account ..	..	..	..	321	5	1
,, Subscription from Members, B Class	102	0	0				,, Garden requisites, including pots, manure, etc.	..	..	..	57	4	0
				648	0	0	,, Discount on mofussil cheques ..	0	14	0			
,, Government Grant for the month of September, 1906 ..	250	0	0				,, Petty charges, including carriage hire, etc.	28	13	0			
,, Government Grant for the month of October, 1906	250	0	0				,, Packing materials, including baskets, etc.	33	10	6			
											63	5	6
,, Government Grant for the month of November, 1906	250	0	0				,, Furniture and plant account ..	..	..	..	21	8	6
							,, Books and periodicals account ..	..	..	..	20	6	6
				750	0	0	,, Printing and stationery account ..	..	..	..	22	0	0
,, Sales of seeds, plants, flowers, fruit trees, etc.	2,712	12	5				,, Postages, stamps and telegrams account	55	12	6			

,, Sale of Ichthemic guano	..	21	0	0				,, Advertisement charges account	..	34	5	9			
,, Out-door work account	..	170	14	0				,, Garden expenses account	..	126	10	9			
					2,904	10	5						216	13	0
								,, Building account	.. ..	..	..	..	10	5	0
								,, House, Water and Lighting Taxes.		..	..	..	37	4	5
								,, Ichthemic guano account	..	..	..	..	26	3	5
								,, Travelling expenses account	..	..	..	..	18	5	0
								,, Red Hills water-supply account	..	..	..	..	223	10	9
								,, Out-door work account	..	..	..	..	102	6	6
								,, Security of Cashier deposited with Messrs. Arbuthnot & Co.	..	..	..	..	750	0	0
								,, Balance of petty cash on hand on the 31st December, 1906	..	200	0	0			
								,, Balance of general cash on hand deposited with Messrs. Spencer & Co., Ld., on the 31st December, 1906	.. ..	873	7	4			
													1,073	7	4
Total Rupees	.. ..				5,840	0	3	Total Rupees	.. .. ..				5,840	0	3

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 15*th March*, 1907.

L. E. KIRWAN,
Honorary Secretary.

Audited and found correct.
A. SALANSON,
Auditor.
24*th March*, 1907.

N. SUBRAHMANYAM,
Honorary Treasurer.

The Proceedings of the Annual General Meeting of the Members of the Agri-Horticultural Society of Madras for the year 1906-07, held on the 30th March, 1907, at 7-30 a.m.

GENERAL COMMITTEE MEETING.

The following gentlemen were present:

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
The Hon'ble Mr. Justice J. E. P. Wallis.
G. Narayanasawmy Chetty, Esq.
Dewan Bahadur N. Subrahmanyam, *Honorary Treasurer*.
L. E. Kirwan, Esq., *Honorary Secretary*.

The Honorary Secretary presented his Report. Mr. Subrahmanyam proposed and Mr. Narayanasawmy Chetty seconded, that it be taken as read.—*Carried.*

Mr. Subrahmanyam proposed and Mr. Narayanasawmy Chetty seconded, that the Report be adopted, and the accounts passed.—*Carried.*

THE HONORARY SECRETARY'S REPORT.

Government Grant. The monthly allowance of Rs. 250, the extra grant of Rs. 500, and the special grant of Rs. 500 for the Flower Show, have been received. A budget estimate for 1907-08 was submitted in August, and the usual amount of Rs. 4,000 was sanctioned by the Government. The Committee wish to place on record their thanks to Government for their continued support.

Finance. The income of the Society during 1906 from all sources amounted to Rs. 15,119-6-5. A reference to the Financial statement will show the details.

Financial Statement

Particulars of Receipts.	Amount.			Total.		
	Rs.	A	P.	Rs.	A.	P.
To Balance with Messrs. Spencer & Co., Ltd., on the 31st December, 1905 ..	1,114	5	0			
,, Do. of Petty Cash on hand on the 31st December, 1905 ..	200	0	0			
				1,314	5	0
,, Security of Cashier S. Thathachary, deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0
,, Subscription from Members, A Class	2,646	0	0			
,, Subscription from Members, B Class	558	0	0			
				3,204	0	0
,, Government Monthly Grant for the year 1906	3,000	0	0			
,, Government Flower Show Grant for the year 1906	500	0	0			
,, Government Extra Grant for the year 1906	500	0	0			
				4,000	0	0
,, Sale of Seeds, Plants, Flowers and Fruit Trees, etc. ..	6,912	11	1			
,, Sale of Ichthemic guano ..	123	8	0			
,, Loan of Plants account ..	239	14	8			
				7,276	1	9
,, Out-door work of laying out Gardens, etc.	..	..	..	3,695	4	8
,, Flower Show Admission Tickets, etc.	..	..	..	906	8	0
,, Interest on Cashier's Security @ 5 % per annum received from Messrs. Arbuthnot & Co. ..	..	..	..	37	8	0
Total Rupees..	..	..	..	21,183	11	5

Agri-Horticultural Society,
Madras,
Teynampett, 15*th January*, 1907.

L. E. KIRWAN,
Honorary Secretary.

for the year 1906.

Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.
By Salary of the Superintendent, Office and Garden Establishments	..	..	..	5,140	0	7
,, Garden Coolies, Permanent and Temporary Account ..	..	..	..	1,256	3	6
,, Purchase of Seeds, Plants, Flowers and Fruit Trees, etc. ..	..	..	..	3,792	3	2
.. Charges recoverable account ..	..	..	..	1,984	14	2
,, Out-door work account of Labour, etc.	..	..	..	1,269	7	3
,, Travelling Expenses to Superintendent	..	..	..	318	5	0
,, Commission to Superintendent @ 2½ % on receipts ..	..	..	..	306	3	0
,, Garden requisites and Garden Expenses	..	..	..	851	8	11
,, Flower Show account ..	..	..	..	1,366	3	6
,, Red Hills Water-supply account..	..	..	..	475	0	1
,, House, Water and Lighting Taxes	..	..	..	72	7	3
,, Packing Materials account ..	122	3	4			
.. Petty Charges and Sundries account	84	0	10			
.. Postages, Stamps, Telegrams and Discount accounts ..	233	7	9			
,, Printing and Stationery and Books and Periodicals accounts.	716	8	7			
				1,156	4	6
,, Advertisement charges account..	..	..	..	213	12	0
,, Furniture and Plant account ..	..	..	..	52	11	5
,, Audit fees account ..	..	..	..	100	0	0
,, Economic Research account ..	..	..	..	16	14	6
,, Building account	..	..	..	704	9	3
,, Ichthemic guano account ..	..	..	..	188	3	0
,, Repairing fernery account ..	..	..	..	57	13	0
.. Security of Cashier deposited with Messrs. Arbuthnot & Co ..	..	..	..	750	0	0
,, Interest received from Messrs. Arbuthnot & Co. and paid to Cashier	..	..	..	37	8	0
.. Balance of Petty Cash on hand on the 31st December, 1906 ..	200	0	0			
,, Balance with Messrs. Spencer & Co., Ltd., on the 31st December, 1906	873	7	4			
				1,073	7	4
Total Rupees..	..	..	..	21,183	11	5

Audited and found correct.

A. SALANSON,
Auditor.

N. SUBRAHMANYAM,
Honorary Treasurer.

Weather.—The weather during the early part of the year was rather trying. Owing to want of rain in the early part of the year, the gardens showed signs of suffering. In June, however, there was a change for the better, and from that month onward rain fell in varying quantities in each successive month up to the end of the year. There were, however, breaks, during which time the excessive heat of the sun had much the same effect upon vegetation as a late frost in spring has at Home.

Month.	Dates on which rain was registered.	Inches.	Max. Temp.	Min. Temp.
January ..	16th, 17th and 18th	3·84	83·9	69·5
February ..	12th, 19th, 26th, 27th and 28th ..	1·13	87·9	72·6
March ..	1st	·21	88·5	71·6
April ..	*Nil.*	..	94·8	78·1
May ..	*Nil.*	..	100·8	83·0
June ..	12th, 14th, 15th, 19th, 25th, 26th and 27th	1·95	97·3	80·8
July ..	4th, 8th, 11th, 14th, 16th, 17th, 18th, 19th, 20th, 21st, 27th, 29th and 30th.	5·07	97·1	79·1
August ..	1st, 7th, 15th. 17th, 18th, 19th, 20th, 21st, 22nd and 23rd	4·48	92·0	77·3
September.	4th, 5th, 6th, 14th, 17th, 18th, 19th, 20th, 21st and 22nd	8·32	92·9	75·5
October ..	16th, 17th, 18th, 19th, 20th, 21st, 23rd, 27th, 28th and 29th	4·03	89·7	75·8
November.	11th, 12th, 13th, 14th, 15th, 20th, 21st, 22nd, 23rd, 24th, 26th, 28th, 29th and 30th	6·98	85·7	72·5
December.	5th, 6th, 7th, 8th, 9th, 14th, 15th, 18th, 19th, 27th and 29th ..	16·63	81·6	71·4
	Total number of rainy days, 84 ..	52·64	..	..

Water-supply.—The large consumption of Red Hills water is due to the fact that the months of February, March, April and May were unusually hot and dry, and the stock of plants

both in the Nursery and Ornamental Gardens has greatly increased. The total quantity of water consumed in both Gardens is 3,576,500 gallons at a total cost of Rs. 397.

Table showing the consumption of Red Hills water in gallons during the year.

Months.	Ornamental Gardens.	Nursery Gardens.	Total.
January ..	150,000	130,800	280,800
February ..	316,600	147,000	463,600
March ..	132,300	185,900	318,200
April	308,700	122,200	430,900
May	397,200	145,600	542,800
June	..	141,000	141,000
July	240,500	141,200	381,700
August ..	223,300	134,200	357,500
September ..	45,400	113,700	159,100
October ..	77,000	140,200	217,200
November ..	104,400	59,900	164,300
December ..	62,300	57,100	119,400
Total ..	2,057,700	1,518,800	3,576,500

Library. –The following books and periodicals have been presented to the Society during the year 1906 :-

The Kew Bulletins of Miscellaneous Information.

The *Tropical Agriculturist* for 1906.

The *Indian Forester* for 1906.

The Bulletins of the Indian Economic and Agricultural Ledger Series for 1906.

The United States Experimental Station Record for 1906.

The *Journal of the Royal Horticultural Society*. Vol. XXIX.

The Records of the Geological Survey of India.

The *Journal of the Agri-Horticultural Society of India*.

The *Queensland Agricultural Journal* for 1906.

The *Indian Textile Journal* for 1906.

The Bulletins of the Imperial Institute for 1906.

The *Agricultural News* of the West Indies for 1906.

The Flora of the Presidency of Bombay, Vol. II. Part II.

A Memorandum on Wood Pulp for Paper Making, by S. Chas. Philips, Esq., M.S.C.I.

The Publications of the Madras Central Agricultural Committee.

The Agricultural Bulletins issued by the Madras Agricultural Department.

The Bulletins of the Departments of Agriculture, West Indies.

A Monograph on Stone-carving in Bengal, by E. B. Havell.

Suggestions on the Improvement of Silk-Reeling in Bengal, by N. G. Mukerji, M.A., etc.

The Annual Reports of the Various Agricultural, Veterinary, and Botanical Stations in India for 1905-06.

The following were acquired by purchase :—

The *Gardeners Chronicle* for 1906.

Curtis's Botanical Magazine for 1906.

The *Agricultural News* of the West Indies, Vol. II. 1905 was bound and placed in the library.

Exchanges.—During the year under report, we have received continued support from outside. We take this opportunity of thanking the following contributors for their contributions of plants and seeds :-

Madras	...J. C. Armstrong, Esq., L. E. Kirwan, Esq., The Superintendent, Guindy Park, R. T. Menzies, Esq., and Dewan Bahadur N. Subrahmanyam.
Tanjore	...M. Abraham Pandither, Esq.
Calcutta	...The Curator, Royal Botanic Gardens.
Peradeniya, Ceylon	... Do. do. do.
Seychelles	... Do. Botanic Gardens.
Ootacamund	... Do. Government Botanic Gardens.
Bombay	...The Director of Agriculture.
Kew	... Do. Royal Botanic Gardens.
West Indies	... Do. Botanic Station, St. Lucia.
Nogent	... Do. do. Gardens.
Trivandrum	... Do. Public Gardens.
St. Petersburg	... Do. Imperial Botanic Gardens.
Paris	... Do. Botanic Gardens.
Melbourne	... Do. do. do.
Jamaica	... Do. Public Gardens and Parks.
Cuba	... Do. Botanic Station, Santiago.
U. S. A.	... Do. do. Gardens, St. Louis.
Jeypur	...The Deputy Conservator of Forests.
Natal	...The Conservator of Forests, Pietermaritzburgh.
Dindigul	...J. Driver, Esq.
Cedara	...The Forester, Natal Government Forest Nursery.
Coonoor	...F. W. Fletcher, Esq.
Yercaud	...Mrs. Gaitskell.
Acton	..J. Hudson, Esq., Gunnersbury Lodge.
Chickmagalur	...N. G. B. Kirwan, Esq., Arabidicool Estate.
Mysore	...H. McLeod Playfair, Esq.
Roehampton	...J. F. McLeod, Esq., Dover House.
East Sheen	..W. Want, Esq., Clare-lawn.
North Queensland	..Dr. S. Thomatis, Cairns.
Bangalore	..The Superintendent, Botanic and Public Gardens.
Bombay	... Do. Victoria Gardens.
Saharanpur	Do. Government Horticultural Gardens.

Baroda	...The Superintendent.	Public Gardens.
Georgetown	... Do.	Botanic Gardens.
	Do.	British Guiana.
Bangalore	...Messrs. Rudrappa & Sons.	
Do.	... Do.	Moonesawmy & Sons.
Richmond	...Mr. Louis R. Russell.	Richmond Nursery.

Flower Show.—The 67th Annual Flower Show was held on the 24th February in the Nursery Gardens. A full report of the Show was published in the First Quarter's Proceedings, 1906. The Committee take this opportunity of thanking those gentlemen who undertook the onerous task of judging the various exhibits, and also those gentlemen who so generously helped by lending tents, tables, etc., also the Commissioner of Police for his assistance. The Silver Medal offered by Mr. G. Narayanasawmy Chetty for the best plant in the Show was awarded to Mr. H. E. Houghton for a fine specimen of Hippeastrum in bloom.

Correspondence.—Enquiries this year have been chiefly centred on rubbers and cottons, the Caravonica cotton still being enquired after. There have also been enquiries about Agave rigida var. Sisalana, Rhea and Camphor, all of which have received attention, and all information asked for has been willingly given.

Garden Staff.—Mr. Cavanagh availed himself of the six months' leave sanctioned him in March, 1906, and left for Home on the 6th May. He resumed his duties on the 19th November. Mr. J. Haskings held the acting appointment during his absence.

It is with much regret that we have to report the loss of the Society's Head Maistry, Manickam, whose death was reported in the Proceedings for the Fourth Quarter, 1906.

The vacancy thus caused has been filled by N. Ramalingam, who previous to 1899 was in the Society's service in the Seed Department, and had during the 16 years he was with the Society gained sufficient knowledge to enable him to accept a better position elsewhere.

Nursery Stock.—Owing to the privilege of a reduction of 50 % off the catalogue prices to members, the demand for Nursery plants has been unusually heavy. The sales in this section have also been very heavy.

The following shows the quantity of plants now in the Nursery :—

Climbers	... 1,800	Trees	... 3,100
Flowering and Foliage plants ...	.. 6,100	Tree seedlings	.. 3,000
Economics	... 8,817	Palms	... 3,000
		Cuttings in beds	... 4,000

Distribution of Stock.—During the year under report, various plants consisting of Mangoes, Roses, Rubbers, Coffees, Climbers, Palms, Crotons, Ferns and other plants, representing a value of Rs. 1,867-14-0, have been distributed to members, who have also received a free supply of Flower, Vegetable and other seeds to the value of Rs. 1,082-10-0.

Plants and seeds have as usual been presented to Botanic and other Public Gardens.

Sales.—During the year under report, various plants of all kinds have been sold to others than members, to the total value of Rs. 9,204-9-6, whilst the sale of Flower, Vegetable and other seeds has realised Rs. 1,109-15-9.

The demand for Cut Flowers, Bouquets, Baskets and other Floral designs has been rather heavier than usually. All orders however have been met, the amount realised being Rs. 730-0-6.

Out-door Work.—The Museum compound and Quibble Island Cemetery, which are under the Society's control, have received the usual amount of attention, and the work of improving the High Court Gardens was completed at the end of January. It was suggested that the latter Gardens should also be placed under the Society's control, but the Registrar of the High Court wrote that Government were not willing to sanction the requisite expenditure. This is to be regretted as without proper and professional supervision the new works carried out must suffer.

New Introductions.—The following is a list of new plants received, or raised from seeds, presented to the Gardens during the year under report :—

Nymphaceæ.

Nymphæa, small blue.
Do. stellata.
Do. gigantea.
Do. pulcherrima.

Capparideæ.

Capparis Jamaicensis.

Tamariscineæ.

Tamarix Germanica.
Do. Japonica plumosa.

Lineæ.

Erythroxylon ovatum.
Do. Coca, var., Novagranatense.
Do. do. var. spruci-anum.

Guttiferæ.

Mammea Americana.

Simarubeæ.

Ailantus grandis.

Sapindaceæ.

Paullinia Barbadensis.

Melastomaceæ.

Bertalonia argentea.

Begoniaceæ.

Rex-Begonia, 8 varieties.

Araliaceæ.

Aralia leptophylla.
Do. elegantissima.
Do. Veitchii.
Do. gracillima.
Do. reticulata.

Rubiaceæ.

Ixora coccinea superba.
Do. Duffii.
Do. Prince of Orange.
Do. Williamsii

Rubiaceous shrub, Uganda.
Coffea, var., Costa Rica.
Do. Blue Mountain variety.
Do. Marigogipe.

Plumbagineæ.

Plumbago coccinea, improved.

Myrsineæ.

Ardisia Pickerangia.

Sapotaceæ.

Sapotaceous shrub, Uganda.

Aleaceæ.

Jasminum primulinum.
Ligustrum robustum.

Apocynaceæ.

Tabernæmontana Barteri.
Dipladenia Boliviensis.
Do. Briarlyana.

Loganaceæ.

Strychnos Mackeni.

Scrophularineæ.

Angelonia alba.

Verbenaceæ.

Clerodendron capense.

Gesneraceæ.

Saint-Paulia ionantha, Improved.

Acanthaceæ.

Aphelandra nitens.

Nyctagineæ.

Bouganvillea coccinea.
Do.

Piperaceæ.

Piper chaba.

Laurineæ.

Cinnamomum brevifolium.

Elæagnaceæ.

Elæagnus macrophylla.
Do. do.

Euphorbiaceæ.

Croton Isareus.
Do. Russelliana.
Do. Aigburth Gem.
Do. Lucien Linden.
Do. Br. Compte.

Urticaceæ.

Ficus Krishna.
Do. radicans variegata.

Coniferæ.

Podocarpus milangiensis.

Orchideæ.

Vanilla lutescens.

Scitamineæ.

Maranta, rosea-marginata.
Do. fuscata.
Do. sp.
Do. sp.
Do. sp.
Musa ornata-rosea.
Costus igneus.

Bromeliaceæ.

Tillandsia Zahnii.

Liliaceæ.

Rhodea Japonica, variegata.

Palmeæ.

Trachycarpa martiana.
Nephrosperma Van Houtiana.
Hyphæna Theibaca.
Calamus angustifolius.
Sabal mauritiformis.
Thrinax parviflora.
Do. sp.
Howea Belmoriana.
Dictyosperma alba.
Copernica cerifera.
Cocos Romanzoffiana.
Pritchardia Thurstoni.
Geonoma Schottiana.
Heterospatha elata.
Cocas Yatay.
Arenga aping.
Mauritia flexuosa.
Sabal glaucescens.

Aroideæ.

Alocasia Watsoniana.
Do. longifolia gigantea.
Do. Sedini.
Do. argentea.
Do. argyrea.
Do. Mortifontainensis.

Cyperaceæ.

Cyperus alternifolius variegatus.

Gramineæ.

Arundinaria nitida.
Do. Falconeri.
Do. Hidsii gramineæ.
Do. fastuosa.
Bambusa palmata.
Do. quadrangularis.
Carex Brunnea.
Do. Victoria.

Filicineæ.

Davallia Figiensis.
Do. do. var. elegans.
Do. do. var. robusta.
Do. do. var. magnifica.
Do. do. var. Mooreana.

PROGRESS AND CONDITION OF THE GARDENS.

Boundary Wall.—In 1905, at which time Col. P. H. Benson, I.M.S., held the office of Honorary Secretary, Government were addressed with reference to the dilapidated condition of the hedge on the western boundary, it being pointed out that owing to the dense growth of trees overhead, it was impossible to keep the hedge in a condition to prevent trespass by cattle and people. Government generously offered to complete the boundary wall on this side from the main gate, down to the south-west corner of the gardens, and also to replace the boundary hedge, along the Cathedral Road, on the Nursery side of the gardens. The work was commenced early in 1906. The erection of this wall has greatly added to the general appearance of the Gardens. A pair of iron gates are under construction for the main entrance, for which we have also to thank the Government.

Agave.—The small plot of Agave rigida var. Sisalana—about one acre in extent—continues to look well; the plants, though not of a uniform size, are all very healthy, and it is expected that several will pole early in 1908.

Cotton.—Owing to the long spell of dry weather early in the year under report, the tree cottons referred to in the Annual Report for 1905-06 suffered considerably, and in consequence there is nothing of any special interest to call for remarks. The few plants of River's Sea Island cotton planted in the Nursery were better protected and hand watered and they are now looking healthy. This variety flowers profusely and sets its fruit freely; the lint is soft, white and of good staple, and it is no doubt the best of the tree cottons which have up to the present been grown in these Gardens. The plant does not make such a rank growth as the Peruvian and Caravonica strains, but this is no doubt an advantage.

Nitro-Bacteria.—The results obtained from experiments with this culture were most disappointing. Lucerne, peas, beans and ground-nut were sown in plots, but there appeared to be no difference between the untreated and the treated soil and seeds. Our results, however, should not be taken as conclusive that this preparation is of no value; in all probability failure was due to the high temperature of the soil, which may have destroyed the vitality of the bacteria.

Ornamental Gardens.—This portion of the Gardens has been kept in a satisfactory condition throughout the year. Notes on various works carried out will be found in the Quarterly Proceedings. The Fourth Quarter's Proceedings contains a view of the Gardens by No. 1 Plant house, which is interesting as it

contains a very good picture of the old Mahogany which was removed in May, 1906. Several cocoanut palms which had died owing to the dry weather of 1905, and which were growing in the borders adjacent to the villager's huts, were also cut down.

A pretty vista to the Victoria tank at the western end was opened up by the removal of a portion of the shrubbery and the re-arrangement of the outlet of the well.

A consignment of seed of Blue Mountain Coffee was received from Jamaica, and a large stock of young plants has been raised, and these are now available for distribution.

Honorary Secretary.—The Committee have much pleasure in recording their thanks to Mr. L. E. Kirwan, who has held the appointment of Honorary Secretary throughout the year.

Honorary Treasurer.—The Committee have much pleasure in placing on record their appreciation of the services of Dewan Bahadur N. Subrahmanyam who held the appointment of Honorary Treasurer throughout the year.

Committee.—Mr. C. Sowden resigned his place on the Committee, on the eve of his departure for England, the vacancy being filled by Mr. H. A. B. Vernon, I.C.S.

Resignations.—12 A Class, and 12 B Class Members resigned during the year under report, and there were six deaths.

New Members.—Nineteen New Members joined in A Class and 25 in B Class. The total number of Members at the close of the year was 198. 112 A Class, 76 B Class, 1 Life-Member, 6 Extraordinary Members and 3 Honorary Members.

Ex-officio Member.—The Hon'ble Mr. Castlestuart Stuart held this office throughout the year.

New Committee.—The following gentlemen were elected members of the Committee for the ensuing year:—

1. C. A. Barber, Esq., F.L.S.
2. The Hon'ble Justice Sir Ralph S. Benson, *Kt.*, I.C.S.
3. The Hon'ble Mr. Justice H. T. Boddam.
4. A. L. Hannay, Esq., I.C.S.
5. H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
6. The Hon'ble Mr. V. G. Lynn.
7. R. T. Menzies, Esq.
8. G. Narayanasawmy Chetty, Esq.
9. C. Sowden, Esq.
10. H A.B. Vernon, Esq., I.C.S.
11. The Hon'ble Mr. Justice J. E. P. Wallis.
12. Dewan Bahadur N. Subrahmanyam, *Honorary Treasurer.*
13. L. E. Kirwan, Esq., *Honorary Secretary.*
14. The Hon'ble Mr. J. N. Atkinson, *Ex-officio.*

Members of the Society on the 31st December, 1906.

President.

His Excellency The Hon'ble Sir Arthur Lawley, K.C.M.G., G.C.I.E.

Honorary Members.

L. A. Bernays, Esq.
General J. P. Ferrier.
Sir J. D. Hooker, C.B., etc.

Extraordinary Members.

Cox, Colonel H. W. H.
Lawson, Sir Charles A., *Kt.*
Steavenson, Joseph, Esq.
West, Henry C., Esq.
Moore, Col. Sir George.
Walker. J. L., Esq.

Life Member.

Houghton, H. E., Esq., F.R.H.S.. Etc.

Subscribing Members, A Class.

1. Adam, John, Esq.
2. Aitchinson, W., Esq.
3. Arbuthnot, P. B., Esq.
4. Atkinson, the Hon'ble Mr. J. N., I.C.S.
5. Bannerji, A. R., Esq., I.C.S.
6. Bannerman, Lieut.-Col. W. B., I.M.S.
7. Barber, C. A., Esq., F.L.S.
8. Benson, the Hon'ble Sir Ralph, *Kt.*, I.C.S.
9. Benson, Col. P. H., I.M.S.
10. Bickley, G. W., Esq.
11. Boddam, the Hon'ble Mr. Justice H. T.
12. Bonham-Carter, Major H., R.E.
13. Bradley, the Hon'ble Mr. H., C.S.I., I.C.S.
14. Buckley, L. E., Esq., I.C.S.
15. Clark, F. S., Esq.
16. Conran, Dr. C.E.
17. Coster, R. J., Esq.
18. Cotton, C. W. E., Esq., I.C.S.
19. Cowdy, Rev. S. J.
20. Dance, G., Mrs.
21. Desikachari, the Hon'ble Sir V., *Kt.*
22. Driver, J., Esq.
23. Elliot, Major R. H., I.M.S.
24. Falconer, Capt. S. E., I.S.M.D.
25. Formby, Lt.-Col. R. F. R., I.A.
26. Furnivall, P. H., Esq.
27. Gaitskell, Mrs.
28. Gajapathi, Rajah Kripamay Deb Ananga Bheema Kesari.
29. Gill, R. P., Esq.
30. Greenall, R., Esq.
31. Hammick, The Hon'ble Mr. M., C.S.I., C.I.E., I.C.S.
32. Hannay, A. L., Esq., I.C.S.
33. Hatchell, D. G., Esq.
34. Henderson, Miss A. E.
35. Jackson, G. H. B., Esq., I.C.S.
36. Jagga Row Garu, Sri Rajah.
37. Janakiram Panthuloo., K., Esq.
38. Jones, R. Ll., Esq.
39. Kumara Rajah of Challapalle.
40. Loftus-Tottenham, A. R., Esq., I.C.S.
41. Lopez, The Very Rev. J.
42. Lynn, The Hon'ble Mr. V. G.
43. Maharajah of Travancore, H. H., G.C.M.G.
44. Maharajah of Bobbili, H. H., C.I.E.
45. Malcolm, Bernard, Esq.
46. Marriot, E. G., Esq.
47. McMillan, E. A., Esq.
48. Menzies, R. T., Esq.
49. Merwanjee Eranee Sorabjee, A., Esq.
50. Miller, A. P., Esq.
51. Miller, The Hon'ble Mr. Justice L. C., I.C.S.
52. Muddukrishna Yachandra Bahadur, Rajah.
53. Nair, Dr. T. M., M.D.

54. Napier, A. S., Esq.
55. Narayana Row, D. L., Esq.
56. Narayana Iyer, R., Esq.
57. Nelson, H. A., Esq.
58. Norton, Eardley J., Esq.
59. Oakes, A. W. D., Esq.
60. Oakes, W. H., Esq.
61. Ormerod, H., Esq.
62. Orr, Sutherland, Esq.
63. Padday, H. L., Esq.
64. Palmer, E. B., Esq.
65. Paterson, G. A., Esq.
66. Pinhey, A. F., Esq., I.C.S.
67. Pollard, Rev. C.
68. Powell, A. J., Esq.
69. Rajah of Kurupam.
70. Rajah of Punganur.
71. Ramanujam Chetty, C., Esq.
72. Read, Archibald, Esq.
73. Richards, Thomas, Esq.
74. Romilly, G., Esq.
75. Ross, C. E., Esq.
76. Rutherford, E. W., Esq.
77. Scott, E., Esq., I.C.S.
78. Sealy-Allen, A , Esq.
79. Sim, The Hon'ble Mr. H. A., C.I.E., I.C.S.
80. Smith, C. Michie, Esq.
81. Smith, P. Bosworth, Esq.
82. Sowden, C., Esq.
83. Sri Maharani Lady Gajapati Rao Garu.
84. Srinivasaraghava Iyer, L., Esq.
85. Straker, C. H., Esq.
86. Stuart, The Hon'ble Mr. A. E. Castlestuart, I.C.S.
87. Subrahmanyam, N., Dewan Bahadur.
88. Subba Naidu, A., Esq.
89. Symonds, A. P., Esq.
90. Tawker, S., Esq.
91. Thompson, H. J., Esq.
92. Thurston, Dr. Edgar.
93. Turner, W. A., Esq.
94. Twigg, Mrs.
95. Vasudeva Rajah, The Hon. Rajah Valia Nambidi of Kollengode.
96. Vaughan, Mrs. C. S.
97. Venkataramadoss Naidu, S. Dewan Bahadur.
98. Venkatachalam, M., Esq.
99. Venkataratna, V., Esq.
100. Vernon, H. A. B., Esq., I.C.S.
101. Vincent, J. R., Esq.
102. Walker, E. Campbell, Esq.
103. Wallis, The Hon'ble Mr. Justice J. E. P.
104. Weir, The Hon'ble Mr. C. J., I.C.S.
105. Whitehead, The Right Rev. H., D.D., Lord Bishop of Madras.
106. White, The Hon'ble Chief Justice Sir Arnold, *Kt.*
107. Wickham, H. C., Esq.
108. Wyllie, Lt.-Col., J. A., **I.A.**
109. Yorke, A. J., Esq.
110. Zemindar of Ettiapuram.
111. Zemindar of Oothukuli.
112. Zemindar of Polaveram.

Subscribing Members, B Class.

1. Agar, B., Esq.
2. Babu Row, K., Esq.
3. Bashyam Reddiar, V., Esq.
4. Breithaupt, E. M., Esq.
5. Carruthers, Lt.-Col. H. St. C., I.M.S.
6. Cayley, B., Esq.
7. Chambers, G. A., Esq.
8. Clerk, H. E., Esq.
9. Coleridge, F. A., Esq., I.C.S.
10. Costello, P. A., Esq.
11. Davy, H. F., Esq.
12. Desikachariar, T., Esq.
13. Dorasawmy Mudaliar, W. M., Esq.
14. Ethirajooloo Naidu, P., Esq.
15. Fisher, T., Esq.
16. Fyson, P. F., Esq., F.L.S.
17. Foulkes, Mrs.
18. Giffard, Major G. G., I.M.S.
19. Golden, S., Esq.
20. Haskings, J., Esq.
21. Hoare, W. E., Esq.
22. Holton, E. P., Rev.
23. Houghton, G., Esq.
24. Josselyn, J., Esq.
25. Khirod Chandra Roy, Esq.
26. Kirwan, L. E., Esq., F.R.H.S.
27. Krishna Row, Badami, Esq.
28. Large, J. C., Esq.
29. Lakshmi Varahan Iyengar, C. R., Esq.
30. Lawson, A. E., Esq.
31. Loane S. J., Esq.
32. Loch, Mrs. J. Carysfort.
33. Macrae, A. W., Esq.
34. MacGregor, H., Miss.
35. Macphail, E. M., Rev.
36. Macnamara, Thomas F., Rev.
37. Maitland, Lt.-Col. J. I.M.S.

38. Mildred, C., Esq.
39. Miller, J. R., Rev.
40. Morres, W., Esq.
41. Muthukumarasawmy Pillai, I. S., Esq.
42. Nallasawmy Pillai, J. N., Esq.
43. Narayanasawmy Chetty, G., Esq.
44. Narasimha Row Pantulu, V., Esq.
45. Natesa Iyer, S., Esq.
46. Oakley, F. H., Esq.
47. Parbury, E. Lt., R.A.
48. Partridge, J. G. D., Esq.
49. Pierce, H. B., Esq.
50. Playfair, McLeod H., Esq.
51. Potts, R. U., Rev.
52. Rajah Iyer, A. K., Esq.
53. Ramanjam Chetty, Tota R. V., Esq.
54. Ramachandra Iyer, K. S., Esq.
55. Raman Nayana, Vengail K., Esq.
56. Rintoul, C. R., Rev.
57. Scott, H. R., Esq.
58. Sharp, A. H., Esq.
59. Simpson, J. F., Esq.
60. Sivasawmy Iyer, The Hon'ble Mr. P. S.
61. Smith, J. G., Esq.
62. Sreenivas, T., Esq.
63. Srinivasachari, G., Esq.
64. Srinivasa Pillai, K. S., Esq.
65. Subba Row, M. K., Esq.
66. Sundaresa Row, M., Esq.
67. Suri Sastry, P., Esq.
68. Syed, Altaf Hosein, Esq.
69. Tambisawmy Mudaliar, A., Esq.
70. Thirumal Row, V., Esq.
71. Tod, W. H., Esq.
72. vanGeyzel, Lt.-Col. J. L., I.M.S.
73. Vaughan, N. J., Esq.
74. Venkatasubba Naidu, S., Esq.
75. White, W. E., Esq.
76. Yates, J. A., Esq.

L. E. KIRWAN,
Honorary Secretary.

Proceedings of the Agri-Horticultural Society of Madras for the 1st Quarter ending the 31st March, 1907.

COMMITTEE MEETING.

At a Committee Meeting held on the 7th January, the following gentlemen were present :—

Sir RALPH BENSON, I.C.S., *in the Chair.*	The Hon'ble Mr. V. G. LYNN.
H. A. B. VERNON, Esq., I.C.S.	H. E. HOUGHTON, Esq., *Ag. Honorary Secretary.*

Resolutions.—The following Resolutions were passed :—

1. That His Excellency Sir Arthur Lawley be invited to be President of the Society in place of the Right Hon'ble Lord Ampthill.

2. That the 3 cwts. of Caravonica cotton seeds received from Dr. Thomatis be handed over to the Central Agricultural Committee for free distribution to the ryots of South India.

3. That a subscription of Rs. 12 be paid annually to the Central Agricultural Committee.

4. That the roof of the Superintendent's Bungalow be repaired at a cost of Rs. 30.

The Judges for the Flower Show to be held in January were selected.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

A. Class.—E. Wolf, Esq.

B. Class.—T. D. Swaminatha Aiyer, Esq.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during January :—

The *Agricultural News*, Vol. IV, Nos. 121 and 122, issued by the Commissioner of Agriculture for the West Indies.

The *Gardener's Chronicle*, Vol. XL, Nos. 1037, 1038, 1039 and 1040. Purchased.

The Annual Reports of the Board of Agriculture, Public Gardens and Plantations and Island Chemist, for the year ended the 31st March, 1906, issued by order of H. E. the Governor of the West Indies.

The Season and Crop Report of the Bombay Presidency for the year 1905-06.

The Report on the working of the Department of Agriculture of the Central Provinces during the year ending the 31st March, 1906.

The following publications of the Central Agricultural Committee, Madras :—

The Report on the Management of the Provincial and District Gardens in the Central Provinces for the year 1905-06.

Circular No. 16, Agricultural apprentices.

Do. No. 17, Do. do.

Do. No. 18, Experiments in Economic Paddy cultivation.

Do. No. 19, Banko Paddy.

The Report of the Seventh Meeting, dated the 15th December, 1906.

The *Indian Textile Journal*, Vol. XVII, No. 196.

Records of the Geological Survey of India, Vol. XXXIV, No. 3.

The *Tropical Agriculturist* and *Magazine* of the Ceylon Agricultural Society, Vol. XXVIII, No. 1, edited by J. C. Willis, Esq., Director, Royal Botanic Gardens, Peradeniya.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. V, No. 11, edited by H. N. Ridley, Esq., M.A., etc., Director of the Botanic Gardens, Singapore.

The Experiment Station Record, Vol. XVI, Nos. 10 and 11, Vol. XVII, No. 10, and Vol XVIII, No. 4, issued by the United States Department of Agriculture.

The Annual Report of the Sibpur Experimental Farm and Agricultural classes for 1904-05.

University of California Publications :—

A short Dichotomous Key to the Hitherto Known Species of Eucalyptus, by J. G. Luchmann, F.L.S., Curator, National Herbarium, Melbourne.

Bulletin No. 180. Resistant Vineyards, by Fred. T. Bioletti, Esq.

The Bulletin of the Department of Agriculture, Vol. IV, Part 5, edited by William Fawcett, Esq., B.SC., F.L.S., Director of Public Gardens and Plantations, Jamaica.

The Bulletin of the Agri-Horticultural Society of Western India, No. 5, the Cultivation of the Grape Vine, by M.R.Ry. P. S. Kanetkar.

Curtis's Botanical Magazine, Vol. III, No. 25, edited by Lieut.-Col. D. Prain, I.M.S., C.I.E., LL.D., etc., Director, Royal Botanic Gardens, Kew.

The *Queensland Agricultural Journal*, Vol. XXVII, No. XI, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The *Indian Forester*, Vol. XXXIII, No. 1, edited by E. P. Stebbing, Esq., F.L.S., etc.

Plants issued.—The following plants were sent out during January:—

To C. K. Srinivasachar, Esq., Gonicopal, Coorg.

3 Plants of Coffea robusta.
4 „ „ Zanquebaria.
12 „ „ Jamaica Blue Mountain variety.

To J. Cameron, Esq., Superintendent, State Gardens, Bangalore, Mysore.

12 plants Coffee, Jamaica Blue Mountain variety.
6 plants of Japanese Bamboos.

ANNUAL FLOWER SHOW.

The Sixty-eighth Annual Flower Show was as usual held in the Nursery Gardens, the arrangements differing only slightly from those of last year. The dividing off of the exhibits of vegetables, fruits and economics from the space allotted for plants and flowers was considered a distinct improvement. The season has been favourable to horticulture, and the exhibits taken on the whole were good, although Classes I and II were rather below the average, this may be accounted for by the fact that owing to the Show being held a month earlier, the *Malis* had not been able to judge the correct time in which to grow their exhibits. In previous years the Show has been held in February, and the native has had a special day for sowing his various Annuals. The changing of the date has upset his old rule, but no doubt the experience gained this year will not be lost on them in succeeding years. Chrysanthemums and Dahlias were at their best and were considered the finest ever exhibited at this Show. A healthy feature this year, was the keen competition; almost every section having two or more competitors.

His Excellency the Governor's Band by kind permission provided the music during the forenoon and Messrs. D'Angelis & Son had charge of the refreshments. Class II, was arranged along the whole length of the walk from the main entrance, and made a bright display. The collection of Annuals exhibited by Mr. Eardley J. Norton was good, as also were the Balsams and Zinnias. Asters were especially good for Madras and were the best seen at the exhibition for some years past. Phloxes and Portulaccas would have been much better with another fortnight's growth. The Petunias exhibited by Mrs. P. Grant were especially fine, surpassing all previous exhibits in this class. There were two exhibits of Salvias but neither were as good as those exhibited last year. The Annual climbers were much below the average. More attention might be given to this section as we have now in Madras a great variety of these plants. They are easily grown and make a fine show when grouped in the garden.

Class I was arranged in continuation of Class II and continued in a circular walk beyond the main show and in front of the refreshment tent. The Begonias, Chrysanthemums and Dahlias were exceptionally fine. Mrs. P. Grant's Chrysanthemums would have

aroused envy among English gardeners whilst Mrs. Twigg's exhibit in this section was only a shade inferior. There was keen competition in both the Rex and Flowering Begonia classes; and the Judges had great difficulty in selecting the best. The first prize for Flowering Begonias went to Mrs. McMillan, and that for Rex Begonias to Dewan Bahadur N. Subrahmanyam, each of the other competitors receiving a second prize. There was keen competition for the prize for Dahlias, the first prize going to Mrs. P. Grant, whose collection was most creditable for Madras. There was a lack of competition for the prizes offered for Verbenas, Perennial climbers and Hibiscus. The judges, however, considered each of the single exhibits worthy of a prize. The Pinks and Dianthus would have been better with another fortnight's growth. As exhibited, they were below the average of previous years. There were no exhibits of either Roses, Cannas or Carnations. This was regrettable, as roses should have been at their best at this time of the year. Cannas also are known to do exceedingly well. Carnations, however, grow very indifferently in Madras.

Class III. This class was poor and was far below the average. Several reasons were assigned for this falling-off, but probably the chief reason is that, on account of the early hour at which exhibits are judged, it is almost impossible to expect ladies to attend to arrange their exhibits. If the judging of this class could be postponed until 8 or 9 A.M., it would allow exhibitors time to arrange their floral exhibits. An alternative would be to open the exhibitions on Friday afternoon, and continue it the whole of Saturday. The exhibits in this class this year, as in previous years, were almost all arranged by native *Malis*, with results which, from an artistic point of view, were far from satisfactory. A redeeming feature, however, was Mrs. P. Grant's decorated table, the design of which was well carried out, the flowers, etc., being very gracefully arranged.

The main portion of the Show was reserved for Class IV and the prizes in each section, with only one or two exceptions, aroused keen competition. There was only one Trophy of Foliage, but it was a good one and well deserved the prize awarded it. There were three collections of Caladiums, which, though smaller than those exhibited in previous years, were very good. Mr. H. E. Houghton's Marantas were a very interesting collection and contained several new varieties and well merited the silver medal awarded to them. There were two very fine groups of Alocasias; the plants were healthy and well grown, and there were a great number of varieties. One of the exhibits contained several curiously marked plants, one variety having a peculiar secondary growth on the under side of the leaf, near its apex. Anthuriums were not exhibited, which is to be regretted as numerous species and varieties of this genus thrive in and around Madras.

There were two good collections of Palms, but that of Mr. Houghton's which included a specimen of *Phytolephas macrocarpum*, was far and away the best.

Mrs. P. Grant showed a good collection of Selaginellas, but it had no rival. This is a class of plants well worthy of more attention; the species and varieties are numerous and their cultivation is fairly easy, while they take kindly to our Madras climate.

There were two very nice groups of Coleus, well grown and looking the picture of health. Acalyphas, Graptophyllums and Eranthemums are an entirely new class, which may probably account for their being only two exhibits. Neither of them in the judge's opinion merited a first prize, the best of the two being awarded the second prize, a bronze medal. These plants, are most decorative, and contain numerous varieties with foliage of the brightest colours. They thrive equally well in pots or in the ground and are well worthy of more attention ; and now that they have been made into a separate section, it is to be hoped that they will be given greater prominence.

Crotons were this year divided into two classes, *viz.*, Well-Grown Crotons, and a Trophy of Crotons. In each section two good groups were shown. The collection of well-grown Crotons exhibited by Mr. L. E. Kirwan, which contained 164 varieties all neatly named, was awarded a Silver Medal. The same exhibitor also secured the Medal offered for the best Trophy of Crotons.

For the prize for the best collection of New Plants grown in Madras, Messrs. Houghton, Kirwan and Muthucumarasawmy Moodaliar competed. The first prize was awarded to Mr. Houghton's collection of new Palms, Panax, Evodia, Caladiums and Marantas. The second prize went to Mr. Kirwan for 40 new Crotons, many of which had been imported from Messrs. L. R. Russell, Plant Merchant, Richmond, who have a large collection of these plants. Mr. Muthucumarasawmy Moodaliar was awarded the third prize for his new seedling crotons raised in Madras. Mr. J. L. Walker was the only competitor for new plants grown anywhere, and was awarded a Silver Medal for a very interesting collection, containing Alocasias, Marantas, Crotons, Ixoras, Aralias, Nepenthes, Cyperus and Crotons all recently imported from England.

The Special Prize of a Silver Medal offered by Mr. G. Narayanasawmy Chetty for the best foliage plant in the Show was won by Mr. Houghton with a very fine specimen plant of Asparagus Sprengeri.

The Special Prize of a Silver Medal offered by the Ichthemic Guano Company, Ipswich, for the best plants grown with their patent manure, was won by Mr. L. E. Kirwan, his exhibit of Salvias in the opinion of the judges showing the best results from the application of this manure.

In Class V, Vegetables Grown in Madras, competition was fairly keen, although the exhibits in this class cannot be compared with the hill produce. The general verdict, however, was that they were good for Madras. Noteworthy exhibits were a bunch of Asparagus shown by Moonoosawmy Chetty and some new potatoes and peas shown by Mr. H. A. B. Vernon, I.C.S. Special prizes were recommended for Yams, Chillies, Colocasia roots and Gourds.

There was a complete change in the rules of Class VI this year, prizes being awarded for collections instead of for individual exhibits. The change was an improvement, undoubtedly. The collections exhibited were all Bangalore-grown vegetables and were a feature of the Show.

The same alterations were enforced in Class VII. The exhibits in this class, however, were hardly up to the average, a result

which was, no doubt, due to the early date of the Show. Only three plates of strawberries were exhibited which were much below the average.

There were as usual no competitors in Class VIII. In Class IX the Coimbatore and Vellore Jails competed and their collections which are always good were much admired.

In Class X the Extra Prize list, there are always some instructive and interesting exhibits, and this was even more the case this year than in previous ones. The Malabar District Agricultural Association secured a Bronze Medal for a good sample of cleaned Agave fibre. Mr. T. Ramanjulu Naidu exhibited a collection of dried pepper, unique to Madras. An interesting exhibit of groundnut pods, cake and oil was arranged by Mr. T. Murgasa Naicker. The same exhibitor also showed a good and varied collection of unginned Cottons and a sample of Kapas. There was some very keen competition in the sugar-cane section, there being six competitors. Mr. Abraham Pandither, of Tanjore, secured the first prize. Amongst his collections were several varieties introduced from the Experimental Farm at Samalkot. There was only one exhibit of Sorghums in ear, for which a prize was awarded to Mr. T. Ramanjulu Naidu. The same gentleman was also successful in winning the first prize for a Collection of Castors in which class there was one other competitor. The collection of economic products exhibited by the Agricultural Associations of Malabar, Kurnool and Ganjam, were a new feature and were very creditable. These Associations are to be congratulated on the way in which they responded to our invitation to compete.

The Malabar Association was successful in carrying off the first prize; its collection contained besides other things an interesting collection of 100 varieties of Paddy. Kurnool was awarded the second prize, Ganjam being placed third.

A Silver Medal was awarded to Mr. Abraham Pandither for an excellent collection of Economic plants. It is rarely that one sees an Indian gentleman taking so keen and practical an interest in economic agriculture, and Mr. Pandither is to be congratulated very heartily on winning a prize. His collection was a varied one, and besides the sugar-cane exhibits, as mentioned above, there were some very fine Yams, and some good specimen roots of Cassava, Arrowroot, Cardamoms, etc.

In the section set aside for products of any special Economic value, the competition was keen, there were several exhibits of Tobacco wrappers, the prize going to Messrs. Hajee Mahomed Ebrahim. Mr. J. C. Large sent an interesting exhibit of Ramie stems, ribbons and cleaned fibre, (Rhea) which secured a bronze medal, and Mr. L. E. Kirwan had a very interesting collection of Rubber and Fibre-yielding plants growing in pots.

Five samples of Tea were sent by Mr. G. Nichols, of the Daver Shola Tea Estate. Mr. N. Ramalingam, the Society's Head Maistry, exhibited an interesting collection of Indian drugs, and tanning barks. All were neatly, and with few exceptions correctly, labelled. They were awarded Medals. Lastly Mr. Simons' exhibit of Pomegranate Tea though interesting, did not win a prize as it

was ruled that this exhibit did not come under the heading of tea but of drugs, in which section the Judges did not consider a prize should be given for a single exhibit.

The following are the details.—

CLASS I.—*Flowers in Pots, exclusive of Annuals.*

General collection of Perennials. First prize a Bronze Medal.—Mr. L. E. Kirwan.

3. Verbenas. First prize a Bronze Medal.—H. E. the Governor.

4. Pinks and Dianthus, single and double varieties. First prize a Bronze Medal.—Mr. W. A. Turner; second prize a Certificate.—Mr. J. W. Crusha.

6. Collection of Climbers (Perennial), First prize a Silver Medal.—Mr. L. E. Kirwan.

8. Collection of Begonias (Rex varieties). First prize a Silver Medal.—Dewan Bahadur N. Subramanyam; second prize a Bronze Medal.—Mrs. McMillan and Mrs. Twigg (equal).

9. Collection of Begonias (fibrous rooted and flowering varieties). First prize a Silver Medal.—Mrs. McMillan; second prize a Bronze Medal.—Mr. Munro and Dewan Bahadur N. Subrahmanyam (equal).

10. Chrysanthemums. First prize a Silver Medal.—Mr. P Grant; second prize a Bronze Medal.— Mrs. Twigg.

11. Dahlias. First prize a Bronze Medal.—Mr. P. Grant; second prize a Certificate.—Mrs. Josselyn.

12. Hibiscus. First prize not awarded; second prize a Bronze Medal.—Mr. H. A. Nelson.

Judges.—Nos. 1 to 7:—Lady Benson and Mr. W. A. Turner; Nos. 8 to 15:—The Hon'ble Mr. C. J. Weir and Mr. L. E. Kirwan.

Nos. 1 to 7:—The entries in this class are poor, no roses, carnations or cannas being shown. The exhibits, as a whole, are far from good. Nos. 8 to 15:—Rex Begonias:—Four excellent exhibits between which it was very difficult to discriminate. It is recommended that Bronze Medals be given to all three exhibitors recommended for second prize. Flowering Begonias:—Also an excellent class, exhibits by Mr. Munro and Dewan Bahadur N. Subrahmanyam both deserve second prizes. Chrysanthemums:—Two very good collections. Dahlias:—Two moderate collections. Hibiscus:—Only one exhibit which merits no more than a Bronze Medal.

CLASS II.—*Annuals grown in Pots.*

1. Collection of Annuals in pots. Prize Rs 10 and a Certificate.—Mr. Eardley J. Norton; second prize Rs. 5 and a Certificate.—The Maharajah of Vizianagram.

2. Double Balsams. First prize Rs. 5 and a Certificate.—Mr. M. Venkatasawmy Naidu; second prize Rs. 3.—Mrs. Foulkes.

3. Portulaccas. First prize Rs. 5 and a Certificate.—H. E. the Governor of Madras.

4. Asters. First prize Rs. 5 and a Certificate.—Mr. C. Brooke-Leggatt; second prize Rs. 3.—Mrs. Foulkes.

5. Phloxes. First prize Rs. 5 and a Certificate—Mrs. A. L. Hannay.

7. Petunias, single and double. First prize Rs. 5 and a Certificate.—Mr. P. Grant; second prize Rs. 3.—Mr. W. H. Oakes.

8. Double Zinnias. First prize Rs. 5 and a Certificate.—Mrs. Foulkes; second prize Rs. 3.—Mr. M. Venkatasawmy Naidu.

9. Salvia. First prize Rs. 5 and a Certificate.—Mr. L. E. Kirwan; second prize Rs. 3.—Mrs. Foulkes.

Judges.—Miss A. E. Henderson and Mr. J. L. Walker.

Remarks.—The collections of annuals in pots were, generally speaking, good. Double Balsams were decidedly good. There was only one exhibit of Portulaccas, but it was of sufficient merit to deserve a prize. There were two exhibits of asters, the third one was in poor condition. There was one good collection of Phloxes. The only exhibit of climbers was a very poor one. Both Petunias and Double Zinnias were good. There were two collections of Salvia, the first prize being given to the collection in best condition. No extra prize for new flowers was awarded; there was one collection.

CLASS III.—*Cut Flowers.*

4. Hollyhocks, Rs. 3.—Mr. Eardley J. Norton.

6. Helianthus, not less than 6 varieties, second prize Rs. 3.—Mr. M. Boyson.

8. Cut Roses, not less than 18 varieties, Rs. 5.—The Hon'ble Mr. J. N. Atkinson.

10. Best collection of Cut Flowers from Shrubs Grown in Madras, Rs. 5.—H. E. the Governor.

12. Table Decorated with Fruit and Flowers or either. First prize a Silver Medal.—Mrs. P. Grant.

Judges.—Mrs. Twigg and Mr. H. A. Nelson.

Remarks.—Fountain Bouquets:—Five exhibits but very poor and badly made. Also they were not fountain bouquets. Button-holes:—The Judges could not award a prize for button-holes as they were exceeedingly bad. Hollyhocks:—Only one exhibit of fair varieties. Dahlias:—Two exhibits, some very good blooms but the conditions of entry were not fulfilled as there were many duplicates. No prize awarded. Helianthus.—Two exhibits. Mr. Boyson's exhibit was the best. The Judges awarded it a second prize as it was not worth a first prize. Chrysanthemums.—Two exhibits but the Judges could not award a prize as there were not 18 varieties. Asters.—No prize, as the exhibit was too poor and there was a quantity of duplicates. Collection of cut flowers from shrubs.—Very good collection. Baskets of cut flowers.—Only two exhibits but not considered worth a prize. Decorated table.—Only one exhibit very well carried out in shades of mauve, a lace centre with mauve and white chiffon border and groups of grapes and foliage, and some very pretty feathery mauve and white blossoms.

CLASS IV.—*Ferns and Foliage Plants.*

1. Trophy of Ferns and Allied Plants. First prize a Silver Medal.—Dewan Bahadur N. Subrahmanyam; second prize a Bronze Medal.—Major Gunn.

2. Collection of Well-grown Ferns, not more than two pots of each species to be exhibited. First prize a Silver Medal.—Dewan Bahadur N. Subrahmanyam; second prize a Bronze Medal.—Major Gunn.

3. Trophy of Foliage Plants. First prize a Silver Medal.—Dewan Bahadur N. Subrahmanyam; second prize a Bronze Medal. —Not awarded.

4. Caladiums. No duplicates. First prize a Silver Medal.—Mr. E. S. Marcar; second prize a Bronze Medal.—Mr. L. E. Kirwan.

5. Collection of Marantas. No duplicates. First prize a Silver Medal.—Mr. H. E. Houghton.

6. Alocasias. No duplicates. First prize a Silver Medal.—Mrs. Twigg; second prize a Bronze Medal.—Mr. G. Ross.

7. Palms and Cycads. First prize a Silver Medal.—Mr. H. E. Houghton; second prize a Bronze Medal.—The Maharajah of Vizianagram.

7*a*. Trophy for Crotons. First prize a Silver Medal.—Mr. L. E. Kirwan; second prize a Bronze Medal.—Mr. P. Muthucumarasawmy Moodelliar.

8. Collection of Well-grown Crotons. First prize a Silver Medal.—Mr. L. E. Kirwan; second prize a Bronze Medal.—Mr. P. Muthucumarasawmy Moodelliar.

9. Ornamental Grasses.—Second prize a Certificate.—Dewan Bahadur N. Subrahmanyam.

10. Dracænas. First prize a Silver Medal.—The Maharajah of Vizianagram; second prize a Bronze Medal.—Mr. G. Ross.

11. Aralias and Panax. No duplicates. First prize a Silver Medal, not awarded; second prize a Bronze Medal.—The Maharajah of Vizianagram.

12. Lycopodiums and Selaginellas. No duplicates. First prize a Silver Medal.—Mr. P. Grant.

14. Coleus. Not more than 100 pots. First prize a Silver Medal. —Mr. W. A. Turner; second prize a Bronze Medal.—Dewan Bahadur N. Subrahmanyam.

15. Acalyphas, Graptophyllums and Eranthemums. First prize a Silver Medal, not awarded; second prize a Bronze Medal.—Mr. H. E. Houghton.

16. Best Collection of New Plants grown in Madras. First prize a Silver Medal.—Mr. H. E. Houghton; second prize a Bronze Medal. —Mr. L. E. Kirwan.

17. Best Collection of New Plants grown anywhere. First prize a Silver Medal.—Mr. J. L. Walker.

Special prizes awarded for the best plants in Class 1, 2 or 4 grown with Ichthemic Guano. First prize a Silver Medal.—Mr. L. E. Kirwan for Salvias.

Judges.—Nos. 1 to 7:—The Hon'ble Mr. H. Bradley, C.S.I., and Mr. R. Greenall; Nos. 8 to 15 Mr. J. G. Smith and Mr. J. Josselyn; Nos. 16 to 18:—Mr. A. L. Hannay and Mr. B. F. Cavanagh.

Remarks.—Nos. 1 to 7:—Mr. Houghton's palms and marantas are very good collections and two of the collections of caladiums are good. Mr. Subrahmanyam's ferns are decidedly good and so are the collections of alocasias; the other exhibits are below the average.

Nos. 8 to 15:—This class generally was poorly supported. There was only one exhibit of ornamental grasses, a very poor lot. The aralias and panax were a fairly even lot but not good enough for first and second prizes Lycopodiums were fairly creditable. Coleus:—Two good collections were shown. An Acalypha collection has not been offered a prize before. The two lots shown were very creditable but on the whole neither were considered to be worth the first prize offered, and a Bronze Medal was awarded.

CLASS V.—*Vegetables (grown in Madras). Not open to Government and Public Institutions.*

1. Celery, best 6 sticks, Rs. 3.—St. Patrick's Orphanage.
2. Beetroot, best 12 roots, Rs. 3.—P. T. Moonoosawmy Chetty.
4. Carrots, best 12 roots, Rs. 3.—Mr. P. T. Moonoosawmy Chetty.
6. Leeks, best 12 roots, Rs. 3.—Messrs. Spencer & Co.
7. Cucumbers, best English 6, Rs. 3.—St. Patrick's Orphanage.
8. Cucumbers, best Country 6, Rs. 3.—Messrs. Spencer & Co.
9. Vegetable Marrows, best 6, Rs. 3.—St. Patrick's Orphanage.
10. Cabbages, Green, best 6 heads, Rs. 3.—Messrs. Spencer & Co.
11. Cabbages, Red, best 9 heads, Rs. 3.—St. Patrick's Orphanage.
12. Tomatoes, Red, best 12, Rs. 3.—St. Patrick's Orphanage.
13. Tomatoes, Yellow, best 12, Rs. 3.—Mr. L. E. Kirwan.
14. Asparagus, best bunch, Rs. 3.—Mr. A. T. Moonoosawmy Chetty.
15. Peas, best 2 plates (shelled and unshelled), Rs. 3.—Mr. H. A. B. Vernon.
16. French Beans, best 2 plates, Rs. 3.—Mr. F. B. Lovery.
17. Kidney Beans, best 2 plates, Rs. 3.—Mr. F. B. Lovery.
18. Lettuces, best 6, Rs. 3.—St. Patrick's Orphanage.
19. Knol-Khol, best 12, Rs. 3.—St. Patrick's Orphanage
20. Jerusalem Artichokes, best 12, Rs. 3.—Mr. P. T. Moonoosawmy Chetty.
21. Radishes, best collection, 1 bunch of each kind, Rs. 3.—Messrs. Spencer & Co.
22. Chillies and Capsicums grown in pots, Rs. 3.—Messrs. Spencer & Co.

22*a*. Sweet Herbs grown in pots, Rs. 3.—Messrs. Spencer & Co.

25. Best Plate of Vegetables of this class not exhibited in Madras before.—Potatoes—Mr. H. A. B. Vernon.

Judges.—Mr. G. Narayanasawmy Chetty and Mr. H. E. Houghton.

Remarks.—The Vegetables grown in Madras at this Show were exceedingly good, and a great improvement on previous years. The Peas shown by Mr. Vernon were very good. We recommend extra prizes for the following:—Brinjals, Mr. J. W. Shaw; Yam (roots), Mr. P. R. Sundara Iyer; Gourds, Mr. Webster; Cucumbers, Mr. Dorasawmy Naicker; Potatoes, Mr. H. A. B. Vernon; Lettuces, Dewan Bahadur N. Subrahmanyam; Chillies, St. Patrick's Orphanage—all of which we consider good, and exhibitors should be encouraged.

Class VI.—*Vegetables. Not open to Government and Public Institutions.*

Best collection of vegetables grown outside Madras. First prize a Silver Medal.—Mr. Purushottam Naidu; second prize a Bronze Medal.—Mr. Rungasawmy Naidu.

Judges.—Mr. H. A. B. Vernon, I.C.S., and Mr. R. T. Menzies.

Remarks.—A good class. Potatoes exhibited by Mr. T. Vengadapalam Pillay especially fine. Of six exhibits, only four were numbered.

Class VII.—*Fruits.*

Best collection of fruits. First prize a Silver Medal.—Mr. Krishnasawmy Naidu; second prize a Bronze Medal.—Mr. K. Govinda Chetty.

Judges.—The Hon'ble Mr. Justice L. C. Miller and the Hon'ble Mr. M. Hammick, C.I.E., I.C.S.

Remarks.—An extra prize may be given for the show of new tomatoes by Mr. L. E. Kirwan, an interesting collection. On the whole the exhibits are disappointing.

Class IX.—*Vegetables (grown anywhere).*

Open to Government and Public Institutions. Best collection of English Vegetables.—First prize a Bronze Medal.—Superintendent, Coimbatore Jail; second prize a Certificate.—Superintendent, Vellore Jail.

Best collection of Indian Vegetables.—First prize a Bronze Medal.—Superintendent, Vellore Jail.

Judges.—Dr. T. M. Nair and Mr. A. Read.

Remarks.—English Vegetables:—A poor collection and nothing very much out of the way. Celery, Beet and Carrots, a good lot. Peas from Vellore Jail very fair. The Coimbatore collection most even and on the whole the best grown exhibits. Indian Vegetables.—We rather stretched a point in awarding a first prize, but Vellore Jail had some very fair exhibits. As a whole rather disappointing.

Class X.—Extra Prize List.

2*a*. Best sample of Aloe Fibres, not less than 5 lbs. Prize a Bronze Medal.—Malabar District Agricultural Association.

4. The best collection of Dried Pepper of different varieties. Prize a Bronze Medal.—Mr. T. Ramanjulu Naidu.

5. The best collection of different varieties of Groundnut in pod with samples of oil-cake and fodder produced from them. Prize a Bronze Medal.—Mr. T. Murugasa Naicker.

6*a*. The best collection of varieties of unginned Cotton (Kapas) samples to consist of 2 lbs. of each sort.—*a*. Indigenous varieties. Prize a Silver Medal.—Mr. T. Murugasa Naicker.

7. Sugar-cane, best samples of Cane, each sample to contain not less than 6 canes. Prize a Silver Medal.—Mr. Abraham Pandither.

8. A collection of Sorghums in ear, not less than 5 ears of each variety. Prize Rs. 10.—Mr. P. R. Sundra Iyer.

9. A collection of Castors, not less than 5 spikes, and 2 lbs. of cleaned seeds of each variety. Prize Rs. 10.—Mr. T. Ramanjulu Naidu.

10. For District Agricultural Associations. The best collection of local products, as exhibiting the Agriculture of the District. Prize a Silver Medal.—Malabar District Agricultural Association.

11. Silver or Bronze Medals to be awarded for exhibits of plants and products of special economic value, *e.g.*, Rubbers; Tobacco leaf grown locally, fit for wrappers; Tanning materials; Tea; Coffee; Drugs; etc.

Tobacco leaf for Wrappers. Bronze Medal.—Messrs. Hajee Mahomed Ebrahim & Co.

Ramie fibre. Bronze Medal.—Mr. J. C. Large.

For collection of Tanning barks. Bronze Medal.—Mr. Ramalingam.

For collection of Drugs. Silver Medal.—Mr. Ramalingam.

Judges.—Mr. A. J. Yorke and the Hon'ble Mr. A. E. Castlestuart Stuart.

Remarks.—Cleaned fibres—not qualified by terms; Aloe fibres—an indifferent collection; dried Pepper—a creditable exhibit; Groundnuts—a good collection; unginned Cotton—indigenous varieties, one exhibit good, exotic varieties, a poor lot; Sugar-cane—six exhibits, good competition, the Saidapet Farm exhibit highly commended: Sorghums in ear—a good collection; Castors—a good collection, two exhibits. The plants and products of special Economic value were an interesting collection to which Mr. M. Abraham Pandither, of Tanjore, largely contributed. To him a special Silver Medal is awarded. Another Silver Medal for a good collection of Drugs is awarded Mr. Ramalingam. Bronze Medals are awarded as follows:—For Tobacco, to Messrs. Hajee Mahomed Ebrahim & Co.; for Ramie Fibre, to Mr. J. C. Large; for Tanning Barks, to Mr. Ramalingam. Local products by District Agricultural Associations—Three District Agricultural Association, competed, *viz.*, Malabar, Kurnool and Ganjam, and have been placed in that order of merit.

COMMITTEE MEETING.

At a Committee Meeting held on the 4th February, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
R. T. Menzies, Esq.
H. E. Houghton, Esq., F.R.H.S., F.R.B.S.
Dewan Bahadur N. Subrahmanyam (*Honorary Treasurer*).
G. Narayanasawmy Chetty, Esq.
L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed :—

1. That the late Mr. T. Manickam's wife be granted a bonus of Rs 60, to be paid her in 12 monthly instalments of Rs. 5.

2. That the Cashier's resignation be accepted, and that Mr. N. Subrahmanyam be asked to assist the Honorary Secretary in the selection of a new man.

3. That His Excellency the Governor's letter, notifying his acceptance of the Presidentship of the Society, vacated by the Right Hon'ble Lord Ampthill, be recorded with gratification.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during February :—

Curtis's Botanical Magazine, Vol. III, No. 26, edited by Lieut.-Col. D. Prain, I.M.S., C.I.E., LL.D., etc., Director, Royal Botanic Gardens, Kew.

The Bulletin of Miscellaneous Information, Nos. 1 and 7 and Appendix 4 and 5, issued by the Director, Royal Botanic Gardens Kew.

The Bulletin of the Department of Agriculture, Vol. IV, Part 12, edited by William Fawcett, Esq., B.SC., F.L.S., Director of Public Gardens and Plantations, Jamaica.

The *Queensland Agricultural Journal*, Vol. XVIII, Part I, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The Memoirs of the Department of Agriculture in India.—

Vol. I, No. 1. The Haustorium of Santalum Album. by C. A. Barber, Esq., F.L.S., Government Botanist, Madras.

Vol. I, No. 2, Indian Wheat Rusts.

Vol. I, No. 3, Fungus Diseases of Sugar-cane in Bengal, by E. J. Butler, Esq., M.B., F.L.S., Imperial Mycologist to the Government of India.

The Influence of Correlation upon the Size of Leaves, by Alfred J. Ewart, D.SC., PH.D., etc.

Note on the Bee-hole borer of Teak in Burma, by E. P. Stebbing, F.L.S., etc.

Indian Insects Pests, by Maxwell Lefroy.

The Journal of the Royal Horticultural Society, Vol. XXXI, edited by G. S. Saunders, F.L.S., F.R.S.

The Report on the Agricultural Stations in the Central Provinces for the year 1905-06.

The Annual Administration Report of the Forest Department of the Madras Presidency for the year ended the 30th June, 1906.

The Report of the Agricultural Branch of the Department of Land Records and Agriculture, Eastern Bengal and Assam, for the year 1905-06.

The *Agricultural News*, Vol. VI, Nos. 23 and 24, issued by the Commissioner of the Imperial Department of Agricultural. West Indies.

The *Gardener's Chronicle*, Vol. XL, Nos. 1041, 1042, 1043 and 1044. Purchased.

The *Indian Forester*, Vol. XXXIII, No. 2, edited by E. P. Stebbing, Esq., F.L.S., etc.

The *Indian Textile Journal*, Vol. XVII, No. 197.

Plants and Seeds received.—The following plants and seeds were presented to the Gardens during February :—

From J. L. Walker, Esq., Madras Club.

1 packet of seeds of Clematis graveolens.

From J. Cameron, Esq., Superintendent, State Gardens, Bangalore, Mysore.

1 packet of seeds of Ipomea bona-nox.

From L. E. Kirwan, Esq., Nungumbaukum, Madras.

14 Croton cuttings.
12 plants of Areca concinna.

From the Director, Botanic Gardens, Sydney.

1 packet of seeds of Acacia pendula (the Myall tree of Australia).

From the Director, Botanic Gardens, Brisbane.

2 packets of seeds of Archonthophœnix Cunninghami.
2 Do. do. do. Alexandra.
2 Do. do. Bacularia monostachys.

New Members.—The following gentlemen were proposed and elected ordinary Members of the Society :—

Class A.—A. J. Leech, Esq.
Class B.—J. Webster, Esq.

COMMITTEE MEETING.

At a Committee Meeting held in the Gardens on the 4th March, 1907, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
R. T. Menzies, Esq.
H. E. Houghton, Esq., F.R.B.S., F.R.H.S.
A. L. Hannay, Esq., I.C.S.
Dewan Bahadur N. Subrahmanyam (*Honorary Treasurer*).
L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed :—

1. That the post of Auditor be offered to Mr. A. Salanson.

2. That the newly-appointed Cashier must pay a cash security on or before the Committee Meeting in May.

3. That the question of the late Cashier's security be left to Mr. N. Subrahmanyam to deal with.

4. That Mr. Cavanagh's letter be recorded.

5. That Mr. Cavanagh be allowed to make a tour of the Madras Railway, in accordance with the conditions contained in Mr. R. Greenall's letter.

6. That with reference to the late Maistry's wife, enquiries be instituted as to her present financial condition.

7. That Mr. Strange's offer for the purchase of Mahogany timber be refused, and that some means be adopted for preserving the logs from insects and other enemies.

New Members.—The following gentlemen were proposed and elected Ordinary Members of the Society :—

Class A.—A. B. Strange, Esq.

Class B.—S. K. Abdul Rahiman Sahib.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during March :—

The Annual Report on the Botanic Gardens and Government Domains of New South Wales for the year 1905.

The Records of the Geological Survey of India, Vol. XXXIV, Part 4, 1906.

Bulletin du Department de l'Agriculture aux Indes Néerlandaises.

No. IV, Micro-Biologie, II.

No. V, Neue Arcbideen des Malaiischen Archipels, von. J. J. Smith.

No. VI, Phytopathologie.

A. Lavoura, Boletim da National de Agricultrua de Brazil, Anno N. IX. and X.

The Royal Botanic Gardens, Kew, Publications—

Bulletin No. 2, Miscellaneous notes.

Appendix 2. Catalogue of the Library additions received during 1906.

Appendix 3. New Garden plants of the year 1906.

The *Queensland Agricultural Journal*, Vol. XVIII, Part 3. edited by A. J. Boyd, Esq., F.R.G.S.Q.

The *Indian Forester*, Vol. XXXIII, No. 3, edited by E. P. Stebbing, Esq., F.L.S., etc.

The *Tropical Agriculturist and Agricultural Journal of the Ceylon Agricultural Society*, Vol. XXVIII, Nos. 2 and 3. edited by J. C. Willis, Esq., Director, Royal Botanic Gardens, Peradeniya, Ceylon.

Curtis's Botanical Magazine, Fourth series, Vol. III, No. 27, edited by Lieut.-Col. D. Prain, I.M.S., C.I.E., LL.D. Director, Royal Botanic Gardens, Kew.

The Bulletin of the Imperial Institute, Vol. IV, No. 4. edited by Prof. W. R. Dunstan, F.R.S.

Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon.—

Vol. III, No. 20. Report of the Director for 1905.

„ No. 21. Report of the Government Mycologist

„ No. 22. Report of the Government Entomologist.

„ No. 23. Government Chemist's Report.

„ No. 24. Report of the Controller, Experiment Station, Peradeniya.

„ No. 25. Report of the Experiment Station, Maha-illuppalama for 1905.

The Experiment Station Record, Vol. XVIII., No. 5, issued by the United States Department of Agriculture.

The University of California Publications.—

Bulletin No. 178, Mosquito Control, by H. J. Quayle.

The *Gardener's Chronicle*, Vol. XL. Nos. 1045, 1046, 1047 and 1048. Purchased.

The *Agricultural News*, Vol. VI, Nos. 25 and 26, issued by the Commissioner of Agriculture West Indies.

COMMITTEE MEETING.

At a Committee Meeting held in the Gardens on the 30th March, 1907, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).

G. Narayanasawmy Chetty, Esq.

Dewan Bahadur N. Subrahmanyam (*Honorary Treasurer*).

L. E. Kirwan, Esq. (*Honorary Secretary*).

The following Resolutions were passed :—

1. That members whose subscriptions are outstanding be written to, before putting Rule 13 into execution.

2. That the Committee desire to express their gratification at the suitable and graceful manner in which Mr. G. S. T. Harris, Government Architect, has carried out the work in connection with the new wall and gate.

3. That the Superintendent's suggestions for the improvement of the nursery, be sanctioned, and the work carried out as funds permit.

4. That the increase of pay to the gardeners and office staff, proposed by the Superintendent, be sanctioned.

L. E. KIRWAN,
Honorary Secretary.

Financial Statement from January to March, 1907.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
To Balance with Messrs. Spencer & Co., Ltd., on the 31st December, 1906 ..	873	7	4				By Salary of the Superintendent, Office and Garden Establishment	..	..	..	1,342	2	10
,, Do. of Petty Cash in hand on the 31st December, 1906..	200	0	0				,, Garden Coolies, Permanent ..	170	13	11			
				1,073	7	4	,, Do. Temporary ..	118	15	9			
,, Subscriptions from Members, A Class	434	0	0								289	13	8
,, Subscriptions from Members, B Class	156	0	0				,, Commission to Superintendent for the 4th Quarter, 1906 ..	..	..	..	80	12	6
				590	0	0	,, Purchases of seeds, plants, flowers, fruit trees, etc. ..	..	..	..	466	8	9
,, Government Grant for the month of December, 1906 ..	250	0	0				,, Charges recoverable	..	..	..	337	3	3
,, Government Grant for the month of January, 1907	250	0	0				,, Garden requisites, including pots, manure, etc.	..	..	..	69	7	0
,, Government Grant for the month of February, 1907	250	0	0				,, Discount on mofussil cheques ..	..	..	..	..	..	..
,, Government Extra Grant for the Flower Show, 1907 ..	500	0	0				,, Petty charges, including carriage hire, etc.	12	14	1			
				1,250	0	0	,, Sundries including oil, etc. ..	0	3	0			
,, Sales of seeds, plants, flowers, fruit trees, etc.	2,664	13	4				,, Packing materials, including baskets, etc.	4	15	0			
,, Sale of Ichthemic guano ..	..	..	..								18	0	1
,, Loan of Plants account ..	..	..	..				,, Furniture and plant account ..	..	..	..	1	5	3
				2,664	13	4	,, Books and periodicals account ..	..	..	..	..	..	..
							,, Printing and stationery account ..	..	..	..	249	10	6
							,, Postages, stamps and telegrams account	..	..	..	52	1	3

,, Out-door account				259	11	0	,, Advertisement charges account				50	1	3
,, Flower Show Admission tickets, etc.				741	4	0	,, Garden expenses account				539	8	0
,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.				750	0	0	,, Economic Research account				1	8	6
							,, Ichthemic guano account				18	1	7
							,, Out-door work account				38	10	10
							,, Red Hills water-supply account				69	8	9
							,, Building account				32	1	3
							,, Flower Show account				794	5	11
							,, Travelling expenses account				76	4	0
							,, Security of Cashier deposited with Messrs. Arbuthnot & Co.				750	0	0
							,, Balance of petty cash on hand on the 31st March, 1907 ..	199	15	4			
							,, Balance of general cash in hand deposited with Messrs. Spencer & Co., Ltd., on the 31st March, 1907	1,852	1	2			
											2,052	0	6
Total Rupees				7,329	3	8	Total Rupees				7,329	3	8

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 21*st April*, 1907.

L. E. KIRWAN,
Honorary Secretary.

Audited and found correct.
A. SALANSON,
Auditor.
21*st April*, 1907.

N. SUBRAHMANYAM,
Honorary Treasurer.

Proceedings of the Agri-Horticultural Society of Madras for the 2nd Quarter ending the 30th June, 1907.

COMMITTEE MEETING.

At a Committee Meeting held on the 8th April, the following gentlemen were present :—

The Hon'ble Mr Justice H. T. Boddam, (*Chairman*).
H. A. B. Vernon, Esq., I.C.S.
The Hon'ble Mr. J. N. Atkinson, I.C.S., *Ex-officio*.
H. E. Houghton, Esq., F.L.S., etc.
The Hon'ble Mr. Justice J. E. P. Wallis.
G. Narayanasawmy Chetty, Esq.
L. E. Kirwan, Esq. (*Honorary Secretary*).

Read letter from Mr. A. Salanson, alleging that the Society's system of preparing its Quarterly and Annual Financial statements was incomplete and suggesting additions and alterations.

Read the revised rules as prepared by Mr H. E. Houghton.

Resolutions.—The following Resolutions were passed :—

1. That a Sub-Committee be appointed to conside. Mr. Salanson's letter and also Mr. Houghton's revised rules. The following gentlemen were appointed:—The Hon'ble Mr. Justice H. T. Boddam, Messrs. R. T. Menzies, N. Subrahmanyam and L. E. Kirwan.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during April :—

Department of Agriculture, Bombay, Bulletin No. 29, preliminary note on Bombay Cottons, by F. Fletcher, M.A., etc.

The Royal Botanic Gardens, Kew, Bulletin of Miscellaneous information No. 3, 1907, issued by Lieut.-Col D. Prain, C.I.E., Director

Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon.—

Vol. IV, No. 2. The use and objects of Agricultural Societies, by E. B. Denham, Esq., C.C.S.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. VI, No. 3, edited by H. N. Ridley, Esq., M.A., etc.

Curtis's Botanical Magazine, Vol. III, No. 1442, edited by Lieut.-Col. D. Prain, C.I.E., Director, Royal Botanic Gardens, Kew.

The *Transvaal Agricultural Journal*, Vol. V, No. 18, issued by the Agricultural Department.

Memoirs of the Department of Agriculture in India, Vol. I, No. 2, (Chemical Series.) The composition of the oil-seeds of India, by Dr. J. Walter Leather, PH. D., etc.

The *Indian Forester*, Vol. XXXIII, No. 4, edited by E. P Stebbing, Esq., F.L.S., etc.

Contributions to the Flora of Queensland, by F. Maison Bailey, Esq., F.L.S., Colonial Botanist.

The *Queensland Agricultural Journal*, Vol. XVIII, Part 4, edited by A. J. Boyd, Esq., F.R.G.S.Q.

Circulars of the Madras Central Agricultural Committee.

Report of the Eighth Committee Meeting and a Memorandum on the Preparation, Packing and Transmission of specimens of Plants, Insects, etc., for expert examination.

Annual Report of the Botanic Gardens, British Guiana, for the year 1905-06.

Boletim da Sociedade Nacional de Agricultura. Brazil. Anno X, N. 11, 1906.

Agricultural Series No. 7, of Land Records and Agriculture, Bengal.—

Bulletin No. 8. Notes on Agave and Furcræa in India, by J. R. Drummond, Esq., and Lieut.-Col. D. Prain, C.I.E.

West Indian Bulletin, Vol. VII, No. 4, and the *Agricultural News*, Vol. VI. No. 127 and 128 issued by the High Commissioner of Agriculture, Barbados, West Indies.

A Monograph on Carpet-weaving in Bengal, by N. G. Mukerji, M.A., etc.

The *Gardener's Chronicle*, Vol. XLI, Nos. 1055, 1056, 1057, 1058 and 1059. Purchased.

The *Indian Textile Journal*, Vol. XVII, No. 199.

Plants and Seeds Issued.—The following plants were sent out during April:—

To J. Cameron, Esq., Superintendent, Public Gardens and Parks, Mysore.

17 miscellaneous plants and 12 cuttings.

To H. F. Macmillan, Esq., Curator, Royal Botanic Gardens, Peradeniya, Ceylon.

Seeds of Euryale ferox.

To M. Abraham Pandither, Esq., Tanjore.

A collection of Chrysanthemum shoots.

To the Superintendent, Victoria Gardens, Bombay.

1 bag of seeds of Corypha umbraculifera.

To the Superintendent, Guindy Park Gardens, Madras.

32 miscellaneous plants.

To the Superintendent, Sojjan Niwas Gardens, Udaipur.

1 bag of seeds of Corypha umbraculifera.

To Mr. L. R. Russell, Nurseryman, East Sheen, Richmond, Surrey.

18 Pine-apple suckers.

Plants and Seeds Received.—The following plants and seeds were received during April:—

From the Director, Botanic Gardens, Karlsruhe, Baden, Germany.

26 packets of seeds.

From the Director, the Botanic Gardens of the Imperial University, Tokio, Japan.

62 packets of seeds.

From the Director, Botanic Gardens, Braunschweig.

39 packets of seeds.

From the Director, Botanic Gardens, Paris, France.

37 packets of seeds.

From the Curator, Botanic Gardens, Cambridge, England.

29 packets of seeds.

From the Director, Mussouri Botanic Gardens, St. Louis, United States of America.

49 packets of seeds.

Bulbils of Furcræa selloa.

„ Agave rigida, var. elongata.

„ Agave Virginica

Bulbs of Crinum longifolium.

From the Director, Botanic Station, Leopol, Lemberg.

2 packets of seeds.

SUB-COMMITTEE MEETING.

A Meeting of the Sub-Committee mentioned above was held on April 15, the following gentlemen being present:—

R. T. Menzies, Esq.
N. Subrahmanyam, Esq.
L. E. Kirwan, Esq., *Honorary Secretary.*

Read letter of apology from the Hon'ble Mr. Justice Boddam for non-attendance due to indisposition.

The Committee after some discussion recommended:—

1st.—That the late Cashier's security should not be re-valued.

2nd.—That the Balance-sheet remain as it is, and that no alterations in the present system is required.

3rd.—That it is unnecessary to introduce a separate subscribers' book.

4th.—That the Superintendent's Provident Fund be deposited in Government Paper, and that Mr. Subrahmanyam do take the necessary steps in this matter.

5th.—That members in arrears with their subscription should not be allowed any reduction in the value of the plants they may order, or a free distribution of seeds.

COMMITTEE MEETING.

At a Committee Meeting held on the 6th May, the following gentlemen were present :—

The Hon'ble Mr. V. G. Lynn (*in the Chair*).

The Hon'ble Mr. J. N. Atkinson, I.C.S., *Ex-officio*.

H. A. B. Vernon, Esq., I.C.S.

H. E. Houghton, Esq., F.L.S., etc.

L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed : –

1. That the Report of the Sub-Committee be adopted.

2. That the consideration of the Draft Rules be postponed for the present.

Contributions.—The Honorary Secretary intimated that the following contributions had been made to the Society during May :—

The Annual Report of the Board of Scientific Advice for India for the year 1905-06.

Curtis's Botanical Magazine, Vol. III, No. 29, edited by Lieut.-Col. D. Prain, C.I.E., etc., Director, Royal Botanic Gardens, Kew.

The following Annual Reports for the year ending the 30th June, 1006 :—

The Upper Shillong Agricultural Station.

The Rangpur Agricultural Station.

The Jorehat Agricultural Station.

The Rajshahi Agricultural Station.

The Tropical Plantation at Wahjain.

The Shillong Fruit Garden.

The following University of California Publications :—

Bulletin No. 181. The Selection of Seed-wheat.

Bulletin No. 182. Analyses of Paris Green and Lead Arsenate.

The following publications of the Department of Agriculture, Madras :—

Scientific Reports of the Bellary, Hagari, Attur, Kóilpatti, Palur and Agricultural Stations for the official year 1905-06.

The Agricultural Bulletin of the Straits and Federated Malay States, Vol. VI, No. 4, edited by H. N. Ridley, Esq., M.A., etc., Director of the Botanic Gardens, Straits Settlements.

The Bulletin of the Department of Agriculture, West Indies, Vol. V, Part 1, edited by William Fawcett, Esq., B.Sc., etc., Director of Public Gardens and Plantations.

The Bulletin of Miscellaneous information of the Royal Botanic Gardens, Kew, No. 4, 1907, issued by Lieut.-Col. D. Prain, C.I.E., Director.

Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon.

Vol. III, No. 19, Lemon Grass in Ceylon.

The Journal of the Agri-Horticultural Society of Western India, April to June 1906, and July to September 1906, edited by the Honorary Secretaries.

The Agricultural Journal of India, Vol. II, Part 2.

The Records of the Geological Survey of India, Vol. XXXV, Part 1, 1907.

The Bulletin du Department de l' Agriculture aux Indes Néerlandaises, No. VIII.

The Experimental Station Records, Vol. XVIII, Parts 6 and 7, issued by the United States Department of Agriculture.

The *Tropical Agriculturist and Magazine* of the Ceylon Agricultural Society, Vol. XXVIII, No. 5, edited by J. C. Willis, Esq., PH.D., Director, Royal Botanic Gardens, Peradeniya.

The Annual Report on the Agricultural and Botanical Stations in the Bombay Presidency for the year 1905-06.

The Annual Report on the Botanic Gardens, Singapore and Penang, for the year 1906.

The *Indian Textile Journal*, Vol. XVII, No. 200.

The Report of the Seventh Meeting of the Central Agricultural Committee, Madras.

The *Gardener's Chronicle*, Vol. XLI, Nos. 1060, 1061, 1062, 1063 and 1064. Purchased.

Imperial Department of Agriculture, West Indies, Publications.—

No. 44. Seedling Canes and Manurial Experiments at Barbados.

No. 45. A. B. C. of Cotton Planting.

The *Agricultural News*, Vol. VI, Nos. 129 and 130.

Do. Index for Vol. V.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society:—

CLASS A.—H. H. the Rajah of Wonpurtty State.

Messrs. C. Srikanteswara Aiyer and C. P. Ramaswami Aiyer.

CLASS B.—Mr. B. Hanumantha Row.

COMMITTEE MEETING.

At a Committee Meeting held on the 2nd June, the following gentlemen were present :—

The Hon'ble Mr. V. G. Lynn (*in the Chair*).
R. T. Menzies, Esq.
Dewan Bahadur N. Subrahmanyam (*Honorary Treasurer*).
G. Narayanasawmy Chetty, Esq.
H. E. Houghton, Esq., F.L.S., etc.
L. E. Kirwan, Esq. (*Honorary Secretary*).

Read letter from Mr. A. L. Hannay tendering his resignation as a member of the Committee.

Read Report from Messrs. W. S. Cresswell & Co., of Calcutta, on the tea exhibited by the Daverashola Estate, Nilgiris, at the last Flower Show.

Resolutions.—The following Resolutions were passed :—

1. That Mr. C. Sowden be asked to join the Committee in place of Mr. A. L. Hannay.

2. That a Silver Medal be awarded to the samples of tea exhibited by the Deverashola Tea Estate Company at the late Flower Show.

3. That the eight extra prizes recommended by the Judges at the last Flower Show be awarded.

4. That Messrs H. A. B. Vernon, N. Subrahmanyan and L. E. Kirwan be requested to act as a Seed Sub-Committee.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during June :—

Government of Madras, Civil Budget Estimate for the year 1907-08.

The Annual Report on the Taj and other Government Gardens at Agra for the year 1906-07.

The *Tropical Agriculturist and Magazine* of the Ceylon Agricultural Society, Vol. XXVIII, No. 6, edited by J. C. Willis, Esq., PH. D., Director, Royal Botanic Gardens, Peradeniya.

Atti dell Istituto Botanico, dell' Universita di Pavia, Italy. 11 Serie, Volume Decimo.

The *Planters Chronicle*, Vol. II, Nos. 4, 5 and 6.

Publications of the University of Cincinnati, Ohio, U.S.A.
The Tylostomeæ, by C. G. Lloyd, Esq.
The Genera of Gastromycetes, by C. G. Lloyd, Esq.

Royal Botanic Gardens, Kew, Bulletin of Miscellaneous Information, No. 5, 1907, issued by Lieut.-Col. D. Prain, C.I.E., Director.

Records of the Geological Survey of India, Vol. XXXV, Part 2.

The *Agricultural News*, Vol. VI, Nos. 131 and 132, issued by the Commissioner of Agriculture, West Indies.

The *Gardeners Chronicle*, Vol. XLI, Nos 1065, 1066, 1067, 1068. Purchased.

The Annual Report of the Royal Botanic Gardens, Calcutta, and the Botanic Gardens, Darjeeling, for the year 1906-07.

The *Indian Textile Journal*, Vol. XVII, No. 201.

Proceedings and Journal of the Agri-Horticultural Society of India for July to December, 1906.

Journal of the Agri-Horticultural Society of Western India, from October, 1906, to March, 1907.

The Bombay Cotton Mills: the Spinning of 10's, 20's and 30's Counts, by a Retired Mill Manager.

The *Queensland Agricultural Journal*, Vol. XVIII, Part 6. edited by A. J. Boyd, Esq., F.R.G.S.Q.

Curtis's Botanical Magazine, Vol. III, No. 30, edited by Lieut.-Col. D. Prain, C.I.E., etc., Director, Royal Botanic Gardens, Kew.

The *Indian Trade Journal*, Vol. V, No. 64.

The Semi-Annual Report of Schimmel & Co., London and New York.

The *Indian Forester*, Vol. XXXIII, No. 6, edited by E. P. Stebbing, Esq., F.L.S., etc.

Memoirs of the Department of Agriculture in India, Vol. II. No. 1, Some Diseases of Cereals Caused by Sclerospora Graminicola. by E. J. Butler, M.B., F.L.S.

The *Quarterly Journal* of the Institute of Commercial Research in the Tropics, Vol. II, No. 4, issued by the Liverpool University.

Department of Land Records and Agriculture. United Provinces. Bulletin No. 22, Manual of Irrigation Wells. by E. A. Molony, I.C.S.

Records of the Botanical Survey of India, Vol. III, No. 3.

Agricultural Research Institute, Pusa, Bulletin No. 4.

First Report on the Fruit Experiments Station at Pusa, by A. Howard, Esq., M.A.

Government of Madras, Revenue Department, G. O. No. 1144, 11th May, 1907. Palm Disease in Godaveri.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

CLASS A.—Marshall F. Reid, Esq., C.I.E., and D. Marshall, Esq.

CLASS B.—Mr. K. Hanumantha Row.

Seeds and Plants Issued.—The following seeds and plants were sent out during the month of June:—

To Mr. R. L. Russell, Nurseryman, East Sheen, Richmond, Surrey, England.

21 Pine-apple suckers.

To the Superintendent, Guindy Park Gardens, Madras

1 oz. of Papaya seeds and 34 plants.

To the Agrostologist, U. S. Department of Agriculture, Bureau of Plant Industry, Washington.

A collection of Cow Peas.

To Thos. W. Brown, Esq., Superintendent, Acclimatisation Gardens, Cairo, Egypt.

3 packets of seeds.

To the Head-master, Civil Orphan Asylum, Madras.

120 plants, a miscellaneous collection.

Seeds and Plants Received.—The following seeds and plants were received during the month of June:—

From the Director, Botanic Gardens, de la Villa Thuret, Antibes.

18 packets of seeds.

From H. W. Raikes, Esq., Chickmaglur, Mysore.

3 oz. of Papaya seeds.

From B. Noble, Esq., Superintendent, Agri-Horticultural Society, Rangoon.

4 packets of seeds.

From Thos. W. Brown, Esq., Superintendent, Acclimatisation Gardens, Cairo, Egypt.

1 bag of seeds of Ziziphus (large fruited.)

From the Director, Botanic Gardens, Zurich, Germany.

14 packets of seeds.

From J. Driver, Esq., Dindigul.

6½ oz. Tobacco seeds.

From the Superintendent, Guindy Park Gardens, Madras.

3 packets of seeds.

From Messrs. Venkatasawmy & Sons, Palace Gardens, Bangalore.

9 miscellaneous plants.

From the Director, Botanic Gardens, Jamaica, West Indies.

3 packets of seeds.

From J. Gossweiler, Esq., Congo Free State.

2 packets of seeds.

From the Director, Botanic Gardens, Dunedin, New Zealand.

12 packets of seeds.

From the Director, Botanic Gardens, Old Calabar, S. Nigeria.

54 packets of seeds.

From the Director, Royal Botanic Gardens, Glasnevin, Dublin, Ireland.

7 packets of seeds.

From the Director, Imperial Botanic Gardens, Krakow, Russia.

8 packets of seeds.

From R. L. Proudlock, Esq., Curator, Government Botanic Gardens, Ootacamund, Nilgiris.

12 plants of Myristica moschata.

THE SUPERINTENDENT'S NOTES.

The Pine-apple—Ananas sativus.

A FEW QUESTIONS AND ANSWERS.

What soils are best suited for the successful culture of the pine-apple?

A light sandy loam of fair depth and containing a fair amount of humus to enable it to hold a little moisture. The sub-soil should be of a porous nature to allow of free drainage.

What soils should be avoided?

Soils of a clayey nature or that are likely to cake hard when dry, as, for instance, black cotton soil.

Why are these soils not beneficial?

Because they hold an excess of moisture which, in the rains, would stagnate and injure, if not kill the plant outright, they being very sensitive to an excess of moisture.

Should a soil physically rich be selected in preference to a poor soil?

Not necessarily. Land unsuited to the cultivation of the plantain has been known to produce an excellent crop of pines. The soils of Florida, a great pine-growing district, are noted for their barrenness.

What plant-foods would need to be added to such soils, and, how should they be treated for pine culture?

By thoroughly ploughing the land, and applying steamed bones and tobacco stems at the rate of 1 ton of the former and 2 tons of the latter per acre; by constant hoeing between the crops and by allowing the weeds to rot on the ground.

What are the effects of cultivating on too rich a soil ?

The fruits, though of large size, are invariably abortive in shape, producing several heads which merge into one and are known as cockscombs. Such fruits are unmarketable, where appearances are of any consideration.

How are pine-apples propagated ?

By seeds, by the crown, by bulbils or offsets, and by suckers.

Which is the best form of propagation ?

By suckers, which are produced from the base of the plant They are more vigorous in growth and produce a healthier plant and consequently a better fruit. Propagation by seed is only adopted when wishing to raise new varieties. The crowns are not as a rule available, as they remain on the fruit when sent to market, and in a well-ordered plantation offsets are not available as these are removed as soon as they show themselves, as they rob the plant of nourishment which should go to the fruit.

How should the ground be prepared for planting ?

First remove all scrub ; then raise furrows 2 feet apart, either with the plough or by the mamooty, taking great care to thoroughly well pulverise the soil, reducing it to as fine a texture as that required for a seed-bed.

At what distance should they be planted ?

This depends on the variety which it is intended to grow, but 18″ by 22″ or 20″ by 24″ are considered safe distances.

How and when should they be planted ?

In light-showery weather. Suckers should be selected of a uniform size, about 6″ long ; they should be planted deep, but avoid allowing the soil to work into the bud of the sucker. They should be made firm by ramming the soil well about their base. If grown to supply the market with fresh fruits, the season at which they fetch the best price should be studied and the suckers planted at such time to insure their fruiting at the right time ; they take from 16 to 18 months from planting the sucker to maturing their fruits. For canning purposes season is of no consequence.

After planting, what cultivation do they require ?

For the first 12 months very little attention is needed beyond an occasional hoeing ; this is essential as the pine resents growing in association with weeds. They may also require an occasional watering if the weather be very dry. If the soil happens to be of a very poor nature, castor poonac might be added during this period at the rate of from 3,000 to 5,000 lbs. per acre, it should be applied often and lightly and after every dressing it should be hoed in.

At the end of 12 months, when the plants will be nearing their flowering stage, the following may be given with advantage:—Blood manure with $\frac{1}{3}$ its weight of sulphate of potash ; apply from 500 to 1,000 lbs. per acre according to the nature of the soil and condition of the plants. After this do not work or cultivate the plantation until the crop has been gathered. As has been proven by Prof. Rolfs, of the Agricultural Department, Florida, many of the best kinds of fertilisers are distinctly injurious to the plants, and superphosphates from rock or marine bone deposits are poison to the plants.

How and when should the crop be harvested?

Great care should be exercised. The fruits should not be cut until they are fully developed ; if required for canning, they may be allowed to ripen on the plant ; if for market, the time must be accurately judged to enable the fruits to reach the market in a condition fit for immediate sale and consumption. After they have been cut, it is safer to hang them up for a day to insure their being perfectly free of surface moisture before being packed.

Are they subject to disease?

Yes, the following being the most common.

1st.—Blight ; this is ascribed to a fungus. A diseased plant will prove the centre of infection for surrounding plants. As soon, therefore, as it is discovered, the affected plant should be lifted and burnt and the soil where it grew saturated with copperas.

2nd.—Spike, due to careless selection of root suckers.

3rd.—Tangle-root, due to badly-prepared land. If the lower leaves of a pine sucker be removed it will be noticed that the adventitious roots are already pressed close to the butt. Now, when planted if these roots encounter lumps of soil, they have not sufficient strength to penetrate it ; they are consequently turned to one side and continue to grow round the collar of the plant, instead of spreading freely through the soil. This action results in either stunting or killing the plant outright.

By what insects are they attacked?

By redspider, scale and mealy-bug. If any of these insects are discovered on the suckers before planting, they may be destroyed by fumigating the plants with hydrocyanic acid ; if however they appear in the plantation they may be dusted with tobacco dust or syringed with tobacco water. Where the soil is very light and the plants have been put in too deep, the sand when dry blows into the crown of the plant ; this is known as sanding.

What varieties are recommended for cultivation ?

1st.--The Kew pine ; this is recognised by it smooth light green foliage and large fruits which are juicy and full flavoured.

2nd.—The Smooth Cayenne ; this is a variety introduced from the West Indies. The foliage is distinguishable by a few light lines of a reddish colour ; the fruit is large, of perfect form, and excellent flavour, and of good appearance. Some consider this the king of pines. It originated in an English hot-house, was grown later in the Azores under glass but without artificial heat, then carried to Florida where it is the most popular and most prolific variety grown, and at the present time it is being extensively cultivated in the West Indies for export to the London market. Mr. J. Cameron introduced it into Bangalore and to him we are indebted for the few plants in the Society's nursery.

3rd The Ripley ; of which there are two varieties, the red and the green. Both excellent fruits, ranking next to the Smooth Cayenne ; they are full flavoured but their small crown rather takes off from their appearance as a fruit for the market.

4th.—The Mauritius ; its foliage is almost free of spines. It develops fruits from 8 to 10 lbs. in weight, juicy but not so full flavoured as the West Indian varieties just mentioned.

Other varieties growing in Madras of which little is known and which are distinguished by the name of the district in which they are grown are the Malabar and Singapore pines. Of the latter there are two variegated forms. The fruits of these are inferior to any of the first-mentioned varieties but are superior to our country pine which is probably the variety introduced by the Dutch about 1549.

The following analysis of pine-growing soils in Florida and Barbican and Bully Dun in Australia may probably be some guide to those intending to take up the cultivation.

	Florida.	Barbican.	Bully Dun.
Insoluble residue ..	97·5085	77·40	80·71
Humus ..	·24	1·765	1·32
Lime ..	·2100	·7672	·6606
Nitrogen ..	·0378	·1190	·0770
Total Phosphoric Acid. .	·0336	·0973	·0973
Available do. ..	..	·0402	·0411
Total Potash ..	·0086	·9887	·0274
Available Potash ..	..	·0134	·0084

A TEA EXHIBIT.

BROKERS' REPORT.

The following is Messrs. W. S. Cresswell & Co.'s Report on the teas exhibited by the Deverashola Tea Estate Company, Nilgiris, at the last Flower Show.

Mark.	Package.	Sort.	Description.	Valuation.
				As. p.
	A.	B. Pekoe..	Even made O. Pekoe kind, some tips, brisk liquor ..	8 6
	B.	O. Pekoe..	Well made leaf, good show of bright tip, hard brisk liquor.	As. 11—11 6
	C.	Pekoe ..	Mixed choppy leaf on B. P. Souchong kind, brisk fair liquor	6 6
	D.	B. O. Pekoe ..	Blackish leafy flaky, rather mixed, fair bright tip, strong useful liquor	11 6
	E.	Golden Tip ..	Well made Golden Tip, thick pungent liquor.	Nominal. Rs. 20 to Rs. 30 per lb.

The Golden Tip is a very handsome tea and the valuation is purely nominal; the other grades are good useful teas with fairly bright infused leaf and brisk liquor.

W. S. CRESSWELL & Co.

N.B.—These samples were taken from an invoice shipped Home and were in no way picked samples. The B. O. P. fetched 1*s.* 4½*d.* in London against 1 1a. 6p. valued above—sold by Messrs. Geo. White & Co., on the 21st March and whole invoice at 9*d.*

L. E. KIRWAN,
Honorary Secretary.

Financial Statement from April to June 1907.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
To Balance with Messrs. Spencer & Co., Ltd., on the 31st March, 1907 ..	1,852	1	2				By Salary of the Superintendent, Office and Garden Establishment ..	1,174	12	4			
,, Do. of Petty Cash on hand on the 31st March, 1907 ..	199	15	4				,, Garden Coolies, Permanent 173-0-10						
							,, Do. Temporary 101-13-8						
				2,052	0	6		274	14	6			
,, Subscriptions from Members, A Class	329	0	0								1,449	10	10
,, Subscriptions from Members, B Class	120	0	0				,, Commission to the Superintendent for the 1st Quarter, 1907				79	6	11
				449	0	0	,, Purchase of seeds, plants, flowers, fruit trees, etc.				1,021	7	6
,, Government Grant for the month of March 1907 ..	250	0	0				,, Charges recoverable				236	3	1
,, Government Grant for the month of April 1907	250	0	0				,, Garden requisites, including pots, manure, etc.				63	0	6
,, Government Grant for the month of May 1907	250	0	0				,, Petty charges, including carriage hire, etc.	7	8	2			
				750	0	0	,, Packing materials, including baskets, etc.	7	9	0			
											15	1	2
,, Sales of seeds, plants and fruit trees, etc. Bills	1,508	7	0				,, Furniture and Plant account				86	0	0
,, Sales of seeds, plants and fruit trees, etc. Cash Sales ..	77	10	6				,, Tools and Plant account				35	0	6
,, Sales of seeds, plants and fruit trees, etc.—V.-P. P's ..	119	0	0				,, Printing and Stationery account				340	3	6
							,, Postages, Stamps and Telegrams account				54	6	0
							,, Discount				0	8	0
				1,705	1	6	,, Advertisement Charges				81	13	6

,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.					750	0	0	,, Garden Expenses account				128	6	3
								,, Economic Research account				0	12	0
								,, Ichthemic Guano account				18	1	7
								,, Out-door Work account				71	0	0
								,, Red Hills Water-supply account				132	5	4
								,, Building account				3	0	0
								,, Flower Show account				18	0	0
								,, Books and Periodicals				12	5	0
								,, Bonus to the widow of the late Head Maistry Manickam				60	0	0
								,, Audit Fees				30	0	0
								,, Security of Cashier deposited with Messrs. Arbuthnot & Co.				750	0	0
								,, Balance of Petty Cash on hand on the 30th June, 1907 ..	200	0	0			
								,, Balance of General Cash on hand with Messrs. Spencer & Co., Ltd., on the 30th June, 1907 ..	819	6	4			
												1,019	6	4
Total Rupees					5,706	2	0	Total Rupees				5,706	2	0

AGRI-HORTICULTURAL SOCIETY,
MADRAS,
TEYNAMPETT, 20*th July*, 1907.

L. E. KIRWAN,
Honorary Secretary.

Audited and found correct.
A. SALANSON,
Auditor.

N. SUBRAHMANYAM,
Honorary Treasurer.

Proceedings of the Agri-Horticultural Society of Madras for the 3rd Quarter ending the 30th September, 1907.

COMMITTEE MEETING.

At a Committee Meeting held on the 5th August the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam, (*Chairman.*)
The Hon'ble Mr. J. N. Atkinson, I.C.S., *Ex-officio.*
The Hon'ble Mr. V. G Lynn.
The Hon'ble Justice Sir Ralph Benson.
Dewan Bahadur N. Subrahmanyam, (*Hon. Treasurer.*)
C. Sowden, Esq.
H. E. Houghton, Esq., F.L.S.
H. A. B. Vernon, Esq., I.C.S.
G. Narayanasawmy Chetty, Esq.

L. E. Kirwan, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed :—

1. That the Annual Flower Show be held on Saturday, the 15th February, 1908.

2. That Mr. Thathachari's letter be recorded.

3. That the security of Rs. 300 deposited by the present Cashier, Mr. Gnanaprakasam, be invested in Government paper in the joint names of the Honorary Secretary and Honorary Treasurer.

4. That Mr. Sowden be charged at the rate of Rs. 2 per cubic foot for the Mahogani wood selected by him.

5. That the Society's funds be transferred from Messrs. Spencer & Co., Ltd., to the National Bank of India, Ltd., Madras branch.

6. That Mr. Houghton's draft of the New Rules be again circulated to the members of the Committee.

7. That Mr. Cavanagh's Seed Report be also circulated.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during the months of July and August:—

Memoirs of the Department of Agriculture in India.

Chemical series, Vol I, No. 4. Experiments on the Availability of Phosphates and Potash in Soils, by J. Walter Leather, Esq., PH.D., etc.

Entomological series, Vol. I, No. 5. The Coccidæ Attacking the Tea Plant in India and Ceylon, by Messrs. E. E. Green, F.E.S., etc., and Harold H. Mann, D.SC.

Agricultural Research Institute, Pusa. Bulletin No. 5 of 1907. Report on Trials of the South African Locust Fungus in India. by Dr. E. J. Butler, M.B., etc.. and H. M. Lefroy, M.A., etc.

Department of Land Records and Agriculture. United Provinces. Bulletin No. 23, Part I. Conditions Determining the Area Sown with Crops in the United Provinces, by W. H. Moreland, Esq., C.I.E., I.C.S.

Miscellaneous Publications from the Agricultural Gazette of New South Wales, by J. H. Maiden, Esq.:—

No. 637.	Useful Australian Plants.		
No. 754.	Weeds of New South Wales.		(Solanum rostratum).
No. 987.	Do.	do.	(Hypericum perforatum)
No. 793.	Do.	do.	(Hordium murinum).
No. 832.	Do.	do.	(Echium plantagineum).
No. 847.	Do.	do.	(Lactuca scariola).
No. 935.	Forestry.		
No. 1008.	Weeds of New South Wales.		(Verbena bonariensis).

Inspecti van deu Landbouw in West-Indie, Bulletin No. 8, Juni, 1907.

Notes from the Botanic Gardens, Sydney, No. 12, by Messrs. J. H. Maiden and E. Betche.

The *Queensland Agricultural Journal*, Vol. XIX. Part I, edited by A. J. Boyd, F.R.G.S.Q.

Curtis's Botanical Magazine, Nos. 31 and 32, edited by Lt.-Col. D. Prain, C.I.E., etc., Director, Royal Botanic Gardens, Kew.

The Bulletin of Miscellaneous Information of the Royal Botanic Gardens, Kew, No 6 of 1907, issued by Lt.-Col. D. Prain, C.I.E., etc., Director.

The *Indian Forester*, Vol. XXXIII. Nos. 7 and 8, edited by W. H. Lovegrove, Esq.

The *Tropical Agriculturist and Magazine of the Ceylon Agricultural Society*, Vol. XXIX, Nos. 1 and 2, edited by Dr. J. C. Willis, PH.D., Director, Royal Botanic Gardens, Peradeniya, Ceylon.

The *Tropical Agriculturist* Supplement, Rubber, Tea, Cocoa, Cocoanuts, Spices, Coffee, Fibres, etc., by Messrs A. M. & J. Ferguson.

The *Transvaal Agricultural Journal*, Vol. V, No. 20, issued by the Agricultural Department.

The following Publications from the Department of Agriculture, West Indies:—

No. 46. Seedling and Other Canes in the Leeward Islands.

No. 47. Manurial Experiments with Sugar-cane in the Leeward Islands.

The *Agricultural News*, Vol. VI, Nos. 132, 133, 134, 135 and 136.

The Bulletin of the Department of Agriculture, West Indies, Vol. V, Parts 2 and 3, edited by W. Fawcett, Esq., B.SC., etc., Director of Public Gardens and Plantations, Jamaica.

The following Publications of the Central Agricultural Committee, Madras:—

Report of the Ninth Meeting, June 22nd, 1907.

Circular No. 20. Improvement of Cotton.

Do. No. 21. Caravonica Cotton.

Do. No. 22. Hints for Agricultural Associations.

The following Publications of the Government of Madras, Revenue Department:—

G. O. No. 1598. Cinchona Administration Report.

G. O. No. 1931. Report on the Government Botanical Gardens and Parks, the Nilgiris, during the year 1906-07.

Annual Report on the Government Cinchona Plantations and Factory in Bengal, for the year 1906-07.

Annual Report of the Royal Botanic Gardens, Peradeniya, Ceylon, by Dr. J. C. Willis, PH.D., etc., Director.

The *Gardener's Chronicle*, Vol. XLI, Nos. 1069 and 1070, and Vol. XLII, Nos. 1071, 1072, 1073, 1074, 1075 and 1076. Purchased.

The *Indian Textile Journal*, Vol. XVII, Nos. 202 and 203.

Experiment Station Record, Vol. XVIII, No. 10, issued by the United States Department of Agriculture.

Plants and Seeds Issued.—The following plants and seeds were sent out during July and August:—

To the Director, Botanic Gardens and Domains, Melbourne, South Australia.

5 lbs. of seeds of Corypha umbraculifera.

To the Secretary, Ceylon Agricultural Society, Colombo

100 cuttings of Betel Vine var. Kalpakancherri.

7 oz. of seed of Dendrocalamus strictus.

100 cuttings of Betel Vine, var. Nannanbera.

To the Maharajah of Mysore's Palace Gardens, Bangalore.

94 miscellaneous plants.

Plants and Seeds Received.—The following plants and seeds were received during July and August:—

From the Superintendent, Public Gardens and Parks, Hongkong.

3 packets of seeds.

From the Superintendent, Guindy Gardens, Madras.

Seeds of Cananga odorata.

From H. F. MacMillan, Esq., Curator, Royal Botanic Gardens, Peradeniya, Ceylon

18 packets of Palm seeds.

From the Superintendent, Empress Botanic Gardens, Poona.

1 packet of seed of Delphinium dasycaulon.

From the Curator, Botanic Gardens, Old Calabar.

1 packet of seed of Napoleona sp.

From the Curator, Botanic Gardens, Durban, Natal.

36 packets of seeds.

From the Deputy Tahsildar, Betalpudiangodi.

100 cuttings of Kalpakancherri Betel Vines.

From the Deputy Tahsildar, Tirurangadi.

100 cuttings of Nannanbera Betel Vines.

From the Deputy Tahsildar, Ottapalum.

100 cuttings of Tiruvozhiya Betel Vines.

From G. H. Weight, Esq., Horto-Botanico, Sao Paulo, Brazil.

1 packet of seed of Galphinnia Brasiliensis.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

CLASS A.—G. H. Sinclair, Esq , M. E. Couchman, Esq., I.C.S. H. H. G. Mitchell, Esq., and the Hon'ble Mr. J. Andrew, I.C.S.

CLASS B.—The Rev. E. C. Scudder, C. Duncan, Esq., and P. G. Tipping, Esq.

COMMITTEE MEETING.

At a Committee Meeting held on the 2nd September the following gentlemen were present :—

The Hon'ble Mr. Justice H T. BODDAM (*Chairman*).

C. SOWDEN, Esq.

H. E. HOUGHTON, Esq., F.L.S.

The Hon'ble Justice Sir RALPH BENSON.

L. E. KIRWAN, Esq. (*Honorary Secretary*).

Resolutions.—The following Resolutions were passed :—

1. That the Report of the Seed Sub-Committee be circulated to the members of the Committee.

2. That the Hon'ble Mr. Justice Boddam and Messrs. C. Sowden, H E. Houghton and L. E. Kirwan be asked to form a Sub-Committee to consider Mr Houghton's draft new Rules.

3. That a letter be written (without prejudice) to Mr. Thathachari, sympathising with him in his loss through the failure of Messrs Arbuthnot & Co., and offering to share his loss with him.

4. That the Committee regret that the Superintendent did not attend to the rule passed by them in October 1906, that orders exceeding Rs. 20 in value be not executed until the Society has been put in funds, and that no exception to this rule be made without special reference to the Honorary Secretary.

Contributions.—The Honorary Secretary intimated that the following contributions had been made to the Society during September :—

The Journal of the Royal Horticultural Society, Vol. XXXII, edited by G. S. Saunders, Esq., F.L.S., etc.

Bulletin of the Imperial Institute, Vol. V, No. 2, issued by Prof. Wyndham R. Dunstan, M.A., LL.D., Director.

The *Indian Forester*, Vol. XXXIII, No. 9, edited by W. H. Lovegrove, Esq.

The Proceedings of the Royal Colonial Institute, Vol. XXXVIII, 1906-07, edited by the Secretary.

The *Planters' Chronicle*, Vol. II, No. 8.

The *Tropical Agriculturist and Agricultural Journal of the Ceylon Agricultural Society*, Vol. XIX, No 3, edited by Dr. J. C. Willis, PH.D., etc., Director, Royal Botanic Gardens, Peradeniya, Ceylon.

The Agricultural Ledger Series :—No. 8 of 1906. Index. Edited by the Reporter on Economic Products to the Government of India.

The *Indian Textile Journal*, Vol. XVII, No. 203.

The *Gardener's Chronicle*, Vol. XLII, Nos. 1077, 1078, 1079, 1080 and 1081. Purchased.

The Agricultural Bulletin of the Straits and Federated Malay States, Vol. VI, No. 7, edited by H. N. Ridley, Esq., M.A., F.L.S., etc., Director of Botanic Gardens, Straits Settlements.

Circulars and Agricultural Journal of the Royal Botanic Gardens, Peradeniya, Ceylon.—

Vol. IV, No. 3. Propagation of Camphor, by J. K. Nock, Esq.

No. 4. A Stem Disease of Tea, by T. Petch, Esq.

No. 5. Plants Usually Available at the Royal Botanic Gardens, Peradeniya.

The *Agricultural News*, Vol. VI, Nos. 137 and 138, issued by the Commissioner of Agriculture for the West Indies.

The *Queensland Agricultural Journal*, Vol XIX, Part 2, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The *Agricultural Journal of India*, Vol. II, Part 3, issued by the Agricultural Research Institute, Pusa.

The Annual Report of the Government Agri-Horticultural Gardens, Lahore, for the year ending the 31st March, 1907.

Seeds Issued.—The following seeds were sent out during September :—

To the Superintendent, Sajjon Niwas' Gardens, Udaipur.

1 oz. of seeds of Cæsalpinia coriaria.

To the Director, Botanic Gardens, La Paz, South America.

6 packets of Palm seeds.

Plants and Seeds Received.—The following plants and seeds were received during September :—

From the Director, Botanic Gardens, Old Calabar.

41 bulbs of Crinum giganteum.
8 seeds of Raphia Hookeri.
15 seeds of Raphia Vinifera.
1 packet of seeds of Funtumia elastica.

From the Curator, Botanic and Domain Gardens, Melbourne, South Australia.

1 packet of seeds of Acacia decurrens

From the Superintendent, Agri-Horticultural Society, Rangoon.

2 cases of Durian seeds.
1 box of seeds of Garcinia Mangostana.
19 orchids.

From the Tahsildar of Ponani.

100 Pepper Vine cuttings.

From Mons. Ed. Luja, Congo Free State.

172 seeds of Landolphia sp.

New Members.—The following ladies and gentlemen were proposed and elected ordinary members of the Society :—

Class A.—Major W. D. Gunn, C.V.D., S. Griffiths, Esq., and Hugh S. Fraser, Esq.

Class B.—M. R. Ry. T. T. Tiruvenkatacheru, Rao Bahadur K. Viresalingam Pantulu, Mrs. Norman Rowsell and Miss Stringfellow.

Budget Estimate.—Read letter from the Honorary Secretary, Agri-Horticultural Society, Madras, dated the 5th August, 1907, submitting Budget Estimate for 1907-08, detailed Account **No. 26, etc.**

Detailed Account No. 26, Government Scientific, etc.,

RECEIPTS.	Budget Estimate, 1908-09.	Budget Estimate, 1907-08.	Revised Estimate, 1907-08.	Receipts, 1906-07.		
	RS.	RS.	RS.	RS.	A.	P.
By Agri-Horticultural Gardens, Madras..	4,000	4,000	4,000	4,000	0	0
By Government monthly and extra grants ..	3,500	3,500	3,500	3,500	0	0
,, Government Flower Show grant ..	500	500	500	500	0	0
,, Sales of seeds, flowers, plants, fruit trees, etc. ..	7,500	6,000	7,500	6,912	11	1
,, Sales of Ichthemic guano ..	100	100	150	123	8	0
,, Subscription from Members ..	4,000	2,500	4,000	3,204	0	0
,, Sales of admission tickets, etc., in the Flower Show ..	900	1,000	900	906	8	0
,, Out-door work of laying gardens, etc.	1,000	500	1,000	3,695	4	8
,, Loan of plants account ..	250	500	250	239	14	8
Total Rs..	17,750	14,600	17,800	19,081	14	5

Proceedings of the Madras Government.

FINANCIAL DEPARTMENT

G. O. No. 421, dated 12th August, 1907.

The usual grant of Rs. (4,000) four thousand to the Agri-Horticultural Society, Madras, will be provided in the Civil Budget Estimate for 1908-09 under the head "26, *Scientific, etc., Departments—Botanical and other Public Gardens.*"

Department, Botanic and other Public Gardens.

EXPENDITURE.	Budget Estimate, 1908-09.	Budget Estimate, 1907-08.	Revised Estimate, 1907-08.	Expenditure, 1906-07.		
	RS.	RS.	RS.	RS.	A.	P.
To Pay of Establishment ..	5,500	5,400	5,500	5,140	0	7
,, Pay of Coolies ..	1,300	1,200	1,300	1,256	3	6
,, Purchases of seeds, plants, flowers, fruit trees, etc. ..	3,000	2,500	3,000	3,792	3	2
,, Red Hills Water-supply ..	500	500	500	475	0	1
,, Rail, shipping, packing charges, cart-hire, etc.	2,000	1,500	2,000	2,107	1	6
,, Printing and Stationery ..	700	600	700	643	9	0
,, Library ..	50	50	50	72	15	7
,, Advertisement charges ..	300	300	250	213	12	0
,, Petty charges and sundries ..	100	100	100	84	0	10
,, Garden requisites including manure, pots, etc. ..	1,000	800	1,000	851	8	11
,, Building and repairing ..	500	1,000	500	704	9	3
,, Furniture and plant ..	150	100	150	52	11	5
,, Quit-rent and Municipal taxes ..	75	150	75	72	7	3
,, Postage, Telegrams and Stamps ..	250	250	250	233	7	9
,, Flower Show account ..	1,300	1,200	1,300	1,366	3	6
,, Out-door work account ..	500	200	500	1,269	7	3
,, Commission to Superintendent ..	250	225	250	306	3	0
,, Audit fees ..	100	100	100	100	0	0
,, Travelling expenses, carriage hire, etc.	150	150	150	318	5	0
,, Economic research ..	50	50	50	16	14	6
Total Rs..	17,775	16,375	17,725	19,076	12	1

The special allotment of Rs. 500 for prizes will not be disbursed in the event of the Annual Flower Show not being held in 1909 (*sic*).

(True Extract.)

(Sd.) C. A. SOUTER,

for *Chief Secretary.*

THE SUPERINTENDENT'S NOTES.

Messrs. Oakes' Improved Aloe (Agave) Fibre Decorticating Machine.

The cultvation of fibre producing plants is an important industry in all parts of the world, but more especially so in the Tropical and Sub-Tropical zones. The chief difficulty invariably is to find a suitable machine for decorticating the fibre. Cheapness, simplicity of structure and a fair out-turn of cleaned fibre are its chief essentials. Another essential is lightness, to enable its being removed from one part of an estate to another. The machine illustrated on the opposite page has been recommended for decorticating Agave fibre and is said to contain all the qualifications stated above. Messrs. Oakes & Co., in recommending their machine, say:—"This machine receives two leaves at a time, will decorticate 6,500 lbs. of Aloe (*sic*) leaves in a day of 10 hours yielding from 3 to 4 % of clean fibre according to the species of leaf used: another 1½ to 2 % of fibre can be recovered from the waste."

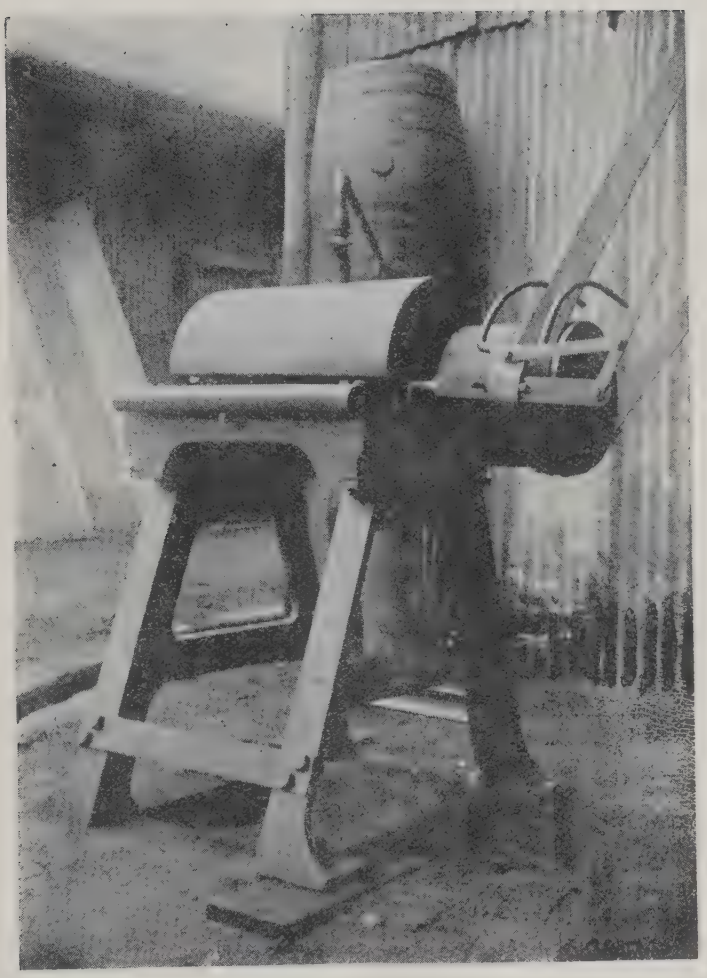
The machine can be driven by a hand gear by coolies, by a bullock gear, or preferably by a 1½ H. P. oil engine. Through the courtesy of Mr. Bryant, the Manager of Messrs. Oakes & Co.'s Beehive Foundry, Mr. M. E. Couchman, the Director of Agriculture in Madras, the Honorary Secretary and myself witnessed a practical test with one of these machines, which was on the whole satisfactory. Mr. Bryant expressed the opinion that the machine could easily be made portable by bolting the frame to a strong trolley, but as to this some doubt was expressed. No doubt on good metalled roads this might be done, but there would be great difficulty in transporting such a machine over roads which are in many cases mere cart tracks. Compared with such machines as the "Todd," which is considered one of the best, it has however certain material advantages.

1st.—Its cost is only Rs. 375, and 4 machines can, it is said, turn out as much work as one Todd machine, which would in Madras cost about Rs. 10,000.

2nd.—These machines, capable as they are of being worked by cooly or bullock power, could be arranged at convenient sites in the estate, and thus minimise the expense of carting the leaves over great distances.

3rd.—Manual labour being cheap and plentiful, it would save the cost of an engine.

The mechanism of the machine is simple, a great factor in its favour. It consists of an iron frame on four strong iron



supports, which can be made fixtures in the ground, or, as before stated, riveted to a trolley. The revolving drum, which is the beater, has raised bars across its length at intervals of a few inches. On the front plate the scraper is fixed; this by means of two bolts may be adjusted to take any thickness of leaf. There is also a strong spring at the back of this scraper, which prevents the leaf jamming, and also prevents the fibre from being destroyed by too great pressure.

The photograph shows only the machine. A driving belt can easily be attached to a large fly-wheel to be worked by coolies, who are said to be able to get up a speed of from 400 to 500 revolutions per minute. With a 1½ H.-P. oil engine, however, the speed can be increased to 800 revolutions, thus ensuring quicker and cleaner work.

Ten leaves of Agave rigida, var. Sisalana, of an average length of 4 feet, and weighing 15 lbs., were passed through the machine and the fibre carefully collected and dried. This test resulted in 8 ozs. of clean fibre, equivalent to 3·32 %; the waste it was calculated would show the leaves as containing almost 6 % of fibre.

The fibre after being passed through water after leaving the machine was white with a good lustre, and did not appear to have been weakened in any way.

Mr. Couchman in his remarks said:—"The result of this trial, *viz.*, the extraction of 3·75 % of good fibre, is very good indeed, and these leaves appear to have actually contained nearly 6 % of fibre, which is extraordinary."

The results of these experiments were communicated to Mr. J. C. Large, of the Cascades, Yercaud, who has been working a machine of a similar type experimentally. He wrote as follows:—

"The machine should be run at a speed of 800 to 1,000 revolutions a minute. I found here that that is the best speed to obtain good results, as I have one of the same kind, only not so wide. I wish you would try a few leaves of a given weight right through the machine and the fibre snatched from under and compare the results with those that are drawn back and reversed. Hold the leaf by the tip end. I am convinced that that is the only way to prevent the enormous waste. What they really want is a double pair of revolving rollers in front of the drum; a larger pair to crush the leaf and the smaller pair to grip the leaf and gradually let it through to the beating drum, when the end would be cleaned and the fibre would be

snatched away from the bottom. There would then be comparatively little waste and all the time wasted in drawing back the fibre would be saved. The roller of course must revolve at a much lower speed than the drum. You should time the work to ascertain the output of green leaf and fibre. My small machine, at which only one cooly can work, will do at the rate of 5,500 lbs. of leaf in ten hours; theirs, which is double the width and at which two men can work should do double this. I do not think their plan of doing 6 inches of the tip first will answer as many of the fibres will slip away when the butt end is finished. The fibres all start from the butt end and many of them end before the tip is reached. Your outturn of 8 oz. fibre from 15½ lbs. of leaves = 3·32 %, whilst mine of nearly 1¼ oz., or say 1⅛ oz., from 1½ lbs. leaf going right through gives 4·67 %, which shows an enormous saving.

L. E. KIRWAN,
Honorary Secretary.

Financial Statement from July to September, 1907.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
To Balance with Messrs. Spencer & Co., Ltd., on the 30th June, 1907	819	6	4				By Salary of Superintendent, Office and Garden Establishment ..	1,231	0	4			
,, Do. of Petty Cash on the 30th June, 1907	200	0	0				,, Garden Coolies, Permanent 170-5-10 ,, Do. Temporary 91-9- 3	261	15	1			
				1,019	6	4					1,492	15	5
,, Subscription from Members, "A" Class	931	0	0				,, Commission to the Superintendent for the 2nd Quarter, 1907 ..	..	..	..	47	15	2
,, Subscription from Members, "B" Class	147	0	0				,, Purchase of seeds, plants, flowers, fruit trees, etc. ..	..	..	..	1,325	2	1
				1,078	0	0	,, Charges recoverable account ..	..	..	..	350	13	0
,, Government Grant for the month of June 1907	250	0	0				,, Garden requisites including pots, manure, etc.	..	..	..	210	1	0
,, Government Grant for the month of July 1907	250	0	0				,, Discount on Mofussil cheques ..	..	..	..	3	9	0
,, Government Grant for the month of August 1907	250	0	0				,, Petty charges including carriage hire, etc.	..	..	..	13	7	10
,, Government Extra Grant for the year 1907	500	0	0				,, Packing materials including baskets, etc.	..	..	..	12	10	8
				1,250	0	0	,, Furniture and Plant account ..	..	..	..	2	6	6
							,, Books and Periodicals account ..	..	..	..	7	2	6
,, Sales of seeds, plants, flowers, fruit trees, etc. Bills account.	1,172	4	8				,, Postages, Stamp and Telegrams account	..	..	..	68	1	7
				1,172	4	8	,, Garden Expenses account ..	..	..	..	117	9	3
Carried over..	..	..	..	4,519	11	0	Carried over..	..	..	..	3,651	14	0

Financial Statement from July to September, 1907—*continued.*

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
Brought forward..	..	..	..	4,519	11	0	Brought forward..	..	..	..	3,651	14	0
To Sales of seeds, plants, flowers, fruit trees, etc. Cash Sales ..	269	13	6				By Advertisement Charges ..	..	..	..	49	2	6
,, Sales of seeds, plants, flowers, fruit trees, etc., by V.-P. P. ..	644	12	0				,, Building account	..	..	..	33	15	0
							,, Flower Show account ..	..	..	..	488	0	0
				914	9	6	,, House, Water and Lighting Taxes.	..	..	..	37	4	5
,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0	,, Economic Research account ..	..	..	..	0	6	0
							,, Travelling Expenses to the Superintendent	..	..	..	25	0	0
							,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	
							,, Balance of Petty Cash on hand on the 30th September, 1907 ..	200	0	0			
							,, Balance of General Cash on hand deposited with the National Bank of India, Ltd., on the 30th September, 1907 ..	948	10	7			
											1,148	10	7
Total Rupees ..	..	..	..	6,184	4	6	Total Rupees ..	..	..	..	6,184	4	6

Agri-Horticultural Society,
Madras,
Teynampett, 19*th October*, 1907.

L. E. KIRWAN,
Honorary Secretary.

Audited and found correct.
A. SALANSON,
Auditor.

N. SUBRAHMANYAM,
Honorary Treasurer.

Proceedings of the Agri-Horticultural Society of Madras for the 4th Quarter ending the 31st December, 1907.

COMMITTEE MEETING.

At a Committee Meeting held on the 7th October, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. Boddam (*Chairman*).
The Hon'ble Justice Sir Ralph Benson, I.C.S.
H. A. B. Vernon, Esq., I.C.S.
The Hon'ble Mr. V. G Lynn.
R. T. Menzies, Esq.
Chas. Sowden, Esq.
H. E. Houghton, Esq., F.L.S.
G. Narayanasawmy Chetty, Esq.
Dewan Bahadur N. Subrahmanyam (*Hon. Treasurer & Ag. Honorary Secretary*).

Resolutions.—The following Resolutions were passed :—

1. That Mr. Cavanagh be granted permission to apply for the post of Superintendent of the State Gardens of H. H. the Gaekwar of Baroda.

2. That a Notice Board be hung up in the Society's Library, and that Members be allowed to put up notices on the same on payment in advance of As. 4 per mensem.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during October :—

Proceedings of the Government of Madras, Revenue Department, G. O. No. 2,179, 30th August, 1907. Cotton.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. VI, No. 9, edited by H. N. Ridley, Esq., M.A., etc., Director of Botanic Gardens, Straits Settlements.

The *Queensland Agricultural Journal*, Vol. XIX. Part 3, edited by A. J. Boyd, Esq., F.R.G.S.Q.

Curtis's Botanical Magazine, Vol. III, No. 34, Fourth Series, edited by Lieut.-Col. D. Prain, C.I.E., etc.

Bulletin of Miscellaneous Information of the Royal Botanic Gardens, Kew, issued by Lieut.-Col. D. Prain, C.I.E., etc., Director.

University of California Publications :—

Bulletin No. 183. The California Tussock-Moth, by W. H Volck, Esq.

„ No. 184. Report of the Plant Pathologist to July 1st, 1906, by Ralph Smith, Esq.

„ No. 185. Report of the Progress in Cereal Investigations, by G. W. Shaw, Esq.

„ No. 186. Oidium or Powdery Mildews of the Vine, by Frederic S. Bioletti, Esq.

„ No. 187. Commercial Fertilizers, by J. S. Burd, Esq.

Experiment Station Records, Vol. XVIII. Nos 11 and 12. issued by the United States Department of Agriculture.

Field Columbian Museum Publications :—

Botanical Series :—Vol. II, No. 4. Studies in the Genus Citharexylum, by Jesse Moore Greenman, Esq.

„ Vol. II, No. 5. Flora of the Sand Keys of Florida, by Charles Frederick Millspaugh, Esq.

Report Series, Vol. III, No. 1. Annual Report of the Director to the Board of Trustees for the year 1906.

The *Tropical Agriculturist and Magazine* of the Ceylon Agricultural Society, Vol. XXIX, No. 4, edited by J. C. Willis, Esq., M.A.

The *Planters' Chronicle*, Vol. II, No. 9, and Proceedings of the United Planters' Association of Southern India, 1907, with Appendix, edited by H. Ormerod, Esq.

Note on the Oudh Seed Depôts, by W. H. Moreland, Esq., I.C.S.

Records of the Geological Survey of India, Vol. XXXV, Part 3, 1907.

Department of Agriculture, Bengal, Publications :—

Year 1907, No. 1, Experiment with Aman Paddy, by E. Smith, Esq., B.SC., etc.

The *Agricultural News*, Vol. IV, Nos. 133 and 134, issued by the Commissioner of Agriculture, West Indies.

Annual Report of the Department of Agriculture and Stock, Queensland, for the year 1906-07.

Land Records Administration Report, Burma, for the year ending the 30th June, 1907.

Report on the Administration of the Department of Agriculture of the United Provinces of Agra and Oudh, for the year ending the 30th June, 1907.

Table A. I of Agricultural Statistics of Eastern Bengal and Assam, for the year 1905-06.

The *Indian Textile Journal*, Vol. XVII, No. 205.

The *Gardener's Chronicle*, Vol. XLII, Nos. 1079, 1080, 1081, 1082 and 1083. Purchased.

New Members.—The following gentlemen were proposed and elected ordinary members of the Society :—

CLASS A.—The Minor Zemindar of Telapathi.

CLASS B —Messrs. B. Pavakerwara Row, M. K. Ramunni Menon and L. Aubert.

Plants and Seeds Received.—The following plants and seeds were received during October:—

From T. M. Brown, Esq., Society of Horticulture and Commerce, Cairo, Egypt.

1 packet of seed of Sterculia diversifolia.

1 „ „ Schinus molle.

From the Rev. Rueger, Villapuram.

1 packet of seed of each of 6 varieties of Tomatoes.

From B. Noble, Esq., Superintendent, Agri-Horticultural Society, Rangoon.

1 packet of seed of Martenizia caryotæfolia.

From R. L. Proudlock, Esq., Curator, Government Botanic Gardens, Ootacamund, Nilgiris.

28 packets of seeds, miscellaneous.

From F. A. Lodge, Esq., Conservator of Forests, Southern Circle, Coimbatore.

1 packet of seed of Garcinia morella.

From L. E. Kirwan, Esq., Nungumbaukum, Madras.

40 Tomato plants in several new varieties from England.

COMMITTEE MEETING.

At a Committee Meeting held on the 2nd December, the following gentlemen were present :—

The Hon'ble Mr. Justice H. T. BODDAM (*Chairman*).

The Hon'ble Mr. V. G. LYNN.

H. A. B. VERNON, Esq., I.C.S.

CHAS. SOWDEN, Esq.

H. E. HOUGHTON, Esq., F.L.S.

L. E. KIRWAN, Esq. (*Honorary Secretary*).

Read letter from Mr. Cavanagh asking that he might be allowed to resign his appointment as early as possible as he had been appointed to the charge of the State Gardens of H. H. The Gaekwar of Baroda.

Resolved that Mr. Cavanagh be allowed to resign in the first week of March or earlier, if his successor has been appointed.

The judges for the Flower Show to be held on the 15th February, 1908, were then selected.

It was also resolved that a list of outstandings be transferred to suspense account so that any amount subsequently collected may be credited.

Contributions.—The Honorary Secretary then intimated that the following contributions had been made to the Society during November and December :—

The International, Vol. I, No. 1. A Review of the World's Progress, edited by Dr. Rodolphe Broda.

Bulletin of the Lloyd Library of Botany, Pharmacy and Materia Medica, No. 9, 1907. Reproduction Series No. 5, by J. W. and C. G. Lloyd. Cincinnati, Ohio.

The following Publications issued by C. G. Lloyd, Esq., Cincinnati, Ohio :—

The Nidulariaceæ or Bird-nest Fungi.

The Phalloids of Australasia.

Mycological Notes :—

Nos. 24 and 25. Concerning the Phalloids.

No. 26. New notes on Geasters.

Jaarbock, van het, Department van Landboun in Nederlandsch Indie, 1906.

The Liverpool University Institute of Commercial Research in the Tropics. Quarterly Journal, Vol. II, No. 5. The Commercial Possibilities of West Africa, by Viscount Mountmorres.

Memoirs of the Department of Agriculture in India :—

Entomological Series, Vol. I, No. 3. The Indian Surface Caterpillars of the Genus Agrotis, by H. Maxwell Lefroy, Esq., M.A.

Vol. I, No. 4. Individual and Season Variations in Helopeltis Theivora, with description of a species of Helopeltis, by Harold H. Mann, Esq. D.SC.

Chemical Series, Vol I, No. 3 The Pot Culture House at the Agricultural Research Institute, Pusa, by J. Walter Leather, Esq., P.H.D., etc.

The construction of Drain Gauges at Pusa, by M. H. Arnott, Esq., M. INST. C.E.

Botanical Series, Vol. I, No. I, Part 2, Studies in Root Parasitism : The Haustorium of Santalum Album, by C. A. Barber, Esq., M.A., etc.

Vol. II, No. 2. The Indian Cottons, by G. A. Gammie, Esq. F.L.S.

The Flora of the Presidency of Bombay, Vol. II, Part 4, by Theodore Cooke, Esq., C.I.E., M.A., etc.

Records of the Geological Survey of India, Vol. XXXV, Part 4 and Vol. XXXVI, Part 1.

The United States Department of Agriculture, Experiment Station Record, Vol. XIX, Nos. 1 and 2.

A'Lavoura, Boletim da Sociedade Nacional de Agricultura Anno XI, Nos. 2, 3, 4, 5, 6, 7 and 8.

The Bulletin of the Imperial Institute, Vol. V, No. 3, edited by Prof. W. R. Dunstan, F.R.S.

The *Agricultural Bulletin* of the Straits and Federated Malay States, Vol. VI, Nos. 10 and 11, edited by H. N. Ridley, Esq., M.A.

The *Tropical Agriculturist and Magazine*, of the Ceylon Agricultural Society, Vol. XXIX, Nos. 5 and 6, edited by Dr. J. C. Willis, M.A.

Bulletin du Department de L'Agriculture aux Indes Néerlandaises, No. IX. (Micro-Biologie III.)

The *Transvaal Agricultural Journal*, Vol. VI, No. 21, issued by the Agricultural Department.

The *Indian Forester*, Vol. XXXIII, Nos. 11 and 12, edited by H. Jackson, Esq.

The *Queensland Agricultural Journal*, Vol. XIX, Nos. 4 and 5, edited by A. J. Boyd, Esq., F.R.G.S.Q.

The *Bulletin of the Department of Agriculture*, West Indies, Vol. V, Parts 8 and 9, edited by William Fawcett, Esq., B.SC., etc., Director of Public Gardens and Plantations, Jamaica.

The *West Indian Bulletin*, Vol. VIII. Nos. 1 and 2, and the *Agricultural News*, Vol. VI, Nos. 135, 136, 137 and 138, issued by the Commissioner of Agriculture, West Indies.

Official Souvenir of the Adelaide Botanic Gardens, South Australia, 1857-1907.

Semi-Annual Report of Schimmel & Co., London and New York.

Acta Horti Petropolitani, Tomus XXVII, Fasciculus I.

The *Planters' Chronicle*, Vol. II, Nos. 10 and 11.

The Eighteenth Annual Report of the Department of Parks and Boulevards of the City of Detroit, 1907.

The *Journal of the Board of Agriculture* of British Guiana, Vol. I, Nos. 1 and 2, edited by A. W. Bartlett, Esq., B.A.

Report on the Operations of the Department of Agriculture, Burma, for the year ending the 30th June, 1907.

Report of the Botanic Gardens, British Guiana, for the year 1906-07.

Season and Crop Report of the Central Provinces and Berar, for the year 1906-07.

Annual Reports of the Board of Agriculture, the Public Gardens and Plantations, and the Island Chemist, Jamaica, West Indies, for the year ended the 31st March, 1907.

Report of the Agricultural Department, Bengal, for the year ending the 30th June, 1907.

Annual Report of the Government Botanic Gardens, Mysore, for the year 1906-07.

The *Gardeners' Chronicle*, Vol. XLII, Nos. 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091 and 1092 Purchased.

The *Indian Textile Journal*, Vol. XVIII, Nos. 206 and 207.

Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon.

Vol. IV, No. 7. Diseases of Tobacco in Dumbara, by T. Petch, Esq.
„ „ No. 6. Rotation of Crops upon Chena Land.

Bulletin of Miscellaneous Information, Appendix IV, 1907, and *Curtis's Botanical Magazine*, Vol. III, Nos. 35 and 36, edited and issued by Lieut.-Col. D. Prain, C.I.E., etc., Director, Royal Botanic Gardens, Kew.

The Second Annual Report of the Kumbakonam Agricultural Association.

Proceedings and Journal of the Agri-Horticultural Society of India, Calcutta, from January to June, 1907.

New Members.—The following ladies and gentlemen were proposed and elected ordinary members of the Society :—

CLASS A.—The Rajah of Pittapuram, and Messrs. Singara Babu, T. Nannusaker Tawker and M. Krishnan.

CLASS B.—Miss N. Karney, and Messrs. A. Mayhew, Mahadeva Mudaliar and Viraraghava Aiyer.

Seeds and Plants Received.—The following seeds and plants were received during November and December :—

From B. Cayley, Esq., Yercaud, the Sheveroys.

89 seeds of Anona Cherimoya.

24 „ „ „ „ large fruited.

From R. D. Richmond, Esq., Tinnevelly Bridge.

1 packet of seed of Passiflora edulis.
1 „ „ Aristolochia odoratissima.
1 „ „ Juniperus Barbadensis.
1 „ „ Carludovica Jamaicensis.
1 „ „ Peltophorum Brasiliensis.
1 „ „ Sicana odoiefera.
1 „ „ Spathelia simplex.

From H. N. Ridley, Esq., Director, Botanic Gardens, Singapore, Strait Settlements.

9 packets of seeds, miscellaneous.

W. Francis Esq., I.C.S., Collector of Malabar, Calicut.

1 packet of seeds of Guiacum officinalis.

From M. M. Ry. C. K. Srinivasa Charlu, Gonicopal, Coorg.

23 Coffee plants in 3 varieties.

THE SUPERINTENDENT'S NOTES.

New Enemies to the Agave Rigida, Var=Sisalana.

A New Fungus.—The several notes which have, from time to time, appeared in the Society's Proceedings reporting the progress of the Sisal Plantation in the Society's Nursery, have always reported a healthy and satisfactory growth of the plants. It was, therefore, with no little surprise that on making the usual inspection of the Plantation one morning in November last it was noticed that several plants had assumed a sickly appearance. The leaves having lost their full and robust habit were changing their colour to a peculiar yellowish-green ; and on closer examination they were discovered to be attacked by some disease. This disease which took the form of a decay, or rot had attacked the base of the leaves, and, if left, would no doubt have travelled through the whole tissues of the plants.

Under instructions from the Honorary Secretary, one of the diseased plants was lifted, packed and despatched to Mr. H. Maxwell Lefroy, Imperial Entomologist, Agricultural Research Institute, Pusa, for his report. Dr. Butler's letter is given in detail, and the result of his inquiries into this fungus are anxiously awaited.

From Dr. E. J. BUTLER, M.B., F.L.S.,
Imperial Mycologist,
Agricultural Research Institute,
To The Secretary, Pusa.
Agri-Horticultural Society, Madras,
Dated Pusa, Bengal, the 1st December, 1907.

Sir,—I have the honour to report on the specimens of diseased Sisal Agave sent to Mr. H. Maxwell Lefroy, Imperial Entomologist, Pusa, with your letter No. 1747, dated 6th November, 1907. They were made over to me as the disease appeared to be of fungal origin.

There is no doubt the plants are attacked by a parasitic fungus in the stem, base of the leaves. The fungus is not yet identified as it has not fruited, but is being cultivated artificially for study and the results will be reported to you subsequently.

I recommend you strongly to have the diseased plants dug up and burnt, including the roots as far as they can be taken out. There is danger of the parasite spreading to other plants and this is the only practical way of destroying it.

I have the honour to be,
Sir,
Your most obedient servant,
E. J. BUTLER,
Imperial Mycologist.

Acting upon Dr. Butler's advice the Plantation was carefully examined and 10 plants, all of which showed signs of the disease, were carefully lifted and burnt. This, however, does not appear to have eradicated the disease, as, on the 10th January, 1908, two more diseased plants were found. These were also immediately lifted and destroyed.

The disease has not confined itself to one portion of the Plantation, but has attacked plants at wide distances apart. The plants attacked were of varying ages and sizes, and previous to being attacked appeared perfectly healthy.

Oryctes rhinoceros.—The Rhinoceros Beetle, which is a common enemy to the Palm family, particularly the Cocoanut palm, has commenced to feed on the Agave; several plants in the Plantation have been bored through the leaf bud to the centre by this beetle.

Should this pest establish itself upon a plantation the destruction caused by it would be serious, for much of the fibre bitten through would have to be counted as waste in the cleaning process.

These beetles which belong to the family of Scarabæidæ are natives of tropical regions, excavating burrows in the earth where they conceal themselves during the day, or they reside in the decomposed trunks of trees. They are said to subsist chiefly upon putrescent wood and detritus of other vegetable matter. Where a plantation is being attacked by this beetle, the first operation towards reducing its numbers would be to keep the ground free of old tree trunks, especially the decayed trunks of the palm family, as it appears to have a particular tendency to breed in these trunks, probably on account of the fibrous nature of the wood.

Chrysanthemums.

The Chrysanthemum is the flower of the East, being the national emblem of sunny Japan where it has been cultivated for many centuries, the yearly Chrysanthemum Show in the Imperial grounds being an occasion for national rejoicing.

Mr. A. Parsons, A.R.A., in his book entitled "Notes on Japan," makes an interesting comparison of their method of growing these with that in vogue in England. He says:—"The plants are treated much as they are with us, raised in pots from cuttings taken in spring and encouraged with plenty of manure until their buds are formed; before flowering they are removed from their pots and planted out in bold groups of colour in beds which have been previously prepared for them. The excellence of the gardener is, however, best shown in growing large bushes, which have been known to carry as many as 400 flowers of medium size, all in perfect condition on the same day." From a very small beginning Chrysanthemum culture in England has been raised to a high art. The Chrysanthemum is a native of China and was from there introduced to Japan. The first notice of its introduction into England was made in 1764 by Sabine who refers to a variety in existence in the Apothecaries Gardens (now known as the

Physic Gardens) Chelsea. This died, so that the history of the plant practically commences with the flowering of a species at Mr. Colvill's Nursery, King's Road, Chelsea early in November, 1795, which figured in *Curtis's Botanical Magazine*, Vol. X, 1796, from which I take the following extracts :— "We rejoice in the opportunity afforded us of presenting our readers with the coloured engraving of a plant recently introduced to this country, which as an ornametal one, promises to become an acquisition highly valuable. The magnificent species.....began to flower early in November, 1795, and as there were many buds on the plant, at that time, yet unopened, it appeared as if it would continue to flower during the early part of the winter at least..... It is a plant of strong growth ; the stem rising to a height of two to three feet,..... the flowers on being smelt discover an agreeable fragrance ; they are produced on the summits of the branches in a loose sort of cluster (those which terminate the main stem grow to the size of a large Carnation) of a dark purple colour. They are between semi-double and double. Rhumphius.....observes, that these plants were originally brought from China where they flower in May and June, that there are two sorts principally cultivated in India, the white and yellow flowered, and a third sort, differing only in the colour of its flowers which are red..... The flowers there do not expand well, owing to their being produced at the rainy season, and they decay without producing any seed. Besides these three varieties already mentioned the Chinese have a fourth, which is more rare, whose flowers are of a greenish ash colour. All these varieties growing in separate pots, they place in certain quarters..... and the effect they produce is highly pleasing ; in the cultivation of this plant they spare no pains, the shorter it is and the larger its flowers, the more it is esteemed ; to make it dwarfish, and at the same time productive of flowers, they check its growth ; for if suffered to grow rude, it assumes a wild nature and produces little but leaves ; when it is coming into flower, of the three blossoms which usually terminate each branch, they pluck off two and thus the remaining flower grows larger ; by this and other management, they cause the flowers to grow to the breadth of a man's hand. He enumerates still a fifth sort with white flowers, which is extremely rare, and smaller than the others, called "*Tschuy say si*," "that is, the drunken woman." Its flowers morning and evening flag and hang down as if debilitated by intoxication. In the middle of the day they become erect and follow the course of the sun.....This Chrysanthemum appears to be a hardy green-house plant and it is highly probable that, like the Camellia and Aucuba, it will bear the cold of our mild winters

without injury. As it flowers so late, there is but little prospect of its producing seeds, but it may be increased by cuttings and parting of the roots."

As with many other things the Chrysanthemum which originated in the East has travelled westwards, there to be improved and to come back to us under such altered characters as to be hardly recognised as the original, *Chrysanthemum Indicum*.

Cultivation in England.—The plants are propagated in a cold frame, the temperature being about 50° F. After rooting they are placed in a cool house, artificial heat only being applied when there is a possibility of the temperature in the house falling below 32° F. As soon as the spring has well set in, and severe frosts are over until the following autumn, the plants are placed in a protected, yet open, position. By this I mean a position where they will not be affected by heavy or boisterous winds, and yet be so placed as to have the full effect of sunlight. They remain in this position until the autumn, or until their buds, which have by then been fully developed, begin to show signs of expanding. At this stage they receive careful attention, each individual variety being carefully studied. For instance, some varieties will not stand a great amount of sun after the buds show colour, the tips of the petals very often being slightly burnt by the sun rays; or a little frost may injure the bud and consequently the flower. Therefore, as soon as the plants have reached this stage, they are brought back into a cool, dry and well ventilated house to flower.

Cultivation in Madras.—Here in Madras where an average minimum temperature is F. 75·0 and the maximum F. 91·4 with a tropical sun beating down for at least 10 months of the year, conditions are very different. The first thing to look to is how best to reduce the effects of this excessive heat during the growing months, which for the Chrysanthemum may be said to be from August to the middle of February. Also means must be adopted to protect them from hot, or strong winds.

The site selected should, if possible, be well protected on the west from the hot winds, and on the north-west from the strong winds which come up from that direction in October, November and December; otherwise the space should be fully exposed to the sunlight. If a natural protection is not already available a good screen could be made round the site by planting a hedge of Korkapalli, and until this has sufficiently developed to afford protection, a light structure of cocoanut leaves could be erected. The next thing to do is to adopt means to protect the plants from the effect of the sun's rays in the

hotter part of the day. This shade should not be permanent, but should be arranged to allow of its being removed at night, or on wet, or dull days. A skeleton frame is what is required.

For convenience it should be run up in the form of a span roof. The uprights could be of Casuarina or old iron Railway lines, or water pipes, with a top frame of the same materials, or of bamboo. At the top of the roof attached to a roller, there should be fixed a canvas blind which could then be rolled up every evening and let down every morning. A good substitute for canvas would be the coarse coir matting procurable from the Basel Mission, Calicut, in rolls of 50 feet, 3 feet wide, at Rs. 2 per roll.

Having arranged for a site on which to grow the plants, the next thing to do is to make arrangements for their propagation. Select a site north of the Bungalow and have a small pit built 4 feet wide, 3 feet long and 2½ feet deep sloping down to 1½ feet. On the top of the brick-work set a wood frame and then make a glass light to fit this. Such a frame when kept nice and moist and carefully shaded in the day-time will be found quite 15 deg. lower than the outside temperature. If such a frame be built it will be found of service during the season, as, after the Chrysanthemums have rooted and been removed, many other tender plants can be rooted in the same manner. Also seeds can be more successfully germinated therein, and young seedlings afforded shelter during the heavy rains.

Having made arrangements for their propagation and having selected and arranged a site for growing the plants, the next point to consider is how to select the best varieties. For years past the Chrysanthemum has, through its popularity at Home, received special attention from Nurserymen whose lists contain many hundreds of varieties, which are divided into several large classes as follow: Incurved, petals strap-shaped, curving inwards; Recurved, petals straped-shaped, curving outwards from the centre; Anemone, or Quilled Aster flowered, ray-petals strap-shaped portion of disc-petals tubular, with an open eye; Pompons, flowers small, numerously produced, petals for the most part reflexed; Quilled or pin-feathered Japanese, flowers 6 inches to 9 inches across, petals involute and tubular, or quilled with toothed tips; large flowered Japanese, flowers large, loose, petals long straped-shaped—in some cases the petals are revolute, twisted and thread-like.

It will be seen that there are plenty of varieties to select from, and it will also be noted that the few varieties already in Madras are representative in a very small way of this large family of plants. In selecting plants for cultivation in Madras

one should be guided by the description given by Home Nurserymen in their Catalogues, keeping in mind that those flowers, the petals of which are full and firm, will best stand the Madras climate. This latter remark refers principally to the Japanese section, as the flowers of the other section have all more or less good firm petals. It is not so, however, with many of the Japanese section. For instance, a variety known as "Good Gracious" with long thread-like petals would never stand the heat of our tropical sun. The petals would be burnt and disfigured and the result would be disappointment.

With our present day ready means of transit it should be possible to get out freshly-rooted plants by Parcel post between the months of November and April. These, if carefully nursed through the hot weather, would provide stock from which to propagate in the following August.

Propagation.—This may be effected by seeds, cuttings, suckers or division of the roots. As a general rule the annual varieties only are propagated by seeds: new varieties of other sections are sometimes raised in this way, though generally by sports; but of this part of their culture I do not intend to write now. Here in Madras the general rule is to propagate by suckers. This is a safe method but it is not considered productive of such good results as propagation by cuttings. By the later means a better root system is established, and this naturally means a healthier and more robust growth, and consequently a better flower.

It is impossible to lay down any definite date when propagation should be started; the grower must be guided by the conditions of the season. If, however, you have built your frame, the first batch of cuttings could be taken as soon as the land winds cease. This is generally towards the end of July or early in August. The best cuttings are made from the young shoots that start from the base of the plants. These are generally found to push their way through the soil near the rim of the pots.

The cuttings should be made about 3 inches long and inserted singly in small pots (what are known as "thumbs") in an open sandy soil. As soon as rooted they should be shifted into 3 inch pots, the compost being a light mixture with only a little manure. In repotting from these into 6 inch pots and finally into their flowering pots, one should be guided by the growth of the plants. The plants should be occasionally tipped out of their pots and their roots examined, and when it is found that the roots have ramified through the whole of the soil they should be potted on. If left in their small pots after this stage has been reached, the plants receive a check, which results in the bud being prematurely formed. On the other hand,

if the young plants are overpotted, they are liable to be overwatered, with the result that the plant becomes weak and unhealthy. The compost for the final potting should be a good, rich mixture. In addition to the usual red soil, sand and leaf mould, tank silt, crushed bones, and chicken guano may be added. When the plants have become settled, after their final potting, an occasional watering with liquid manure will be found beneficial, and after the buds have developed and are on the point of bursting, an application of ichthemic guano or Clay's fertiliser will assist the buds in opening regularly and will also improve the substance and colour of the flowers. The plants should be arranged in rows under the skeleton frame previously mentioned. There should be a good 3 inches between each pot in the rows, and the rows should be 2 feet apart. This will allow of the free circulation of air between the plants, air being as essential to plants as to animal life. It is hardly necessary to add that thorough drainage is at all times most necessary, and to further ensure this it is as well to stand each pot on a brick.

Each plant should be neatly staked, not only for appearance sake but also to prevent the plant swaying in the breeze, which, if permitted, may strain the roots around the collar of the plant. Also, if the stem is allowed to fall to one side, the regular flow of sap is arrested, with the result that an unnecessary amount of side-growths are developed, which rob the main stem of considerable nourishment. It is well to bear in mind that the secret of success in the cultivation of these plants is that they should not receive a check of any description from putting the cutting in the case up to the period when the plant flowers.

Chrysanthemums, when in full and vigorous growth, require a large quantity of water, though few plants sooner show the injurious effects of sour or water-logged soil. It will be found a good plan to keep the ground surrounding the pot continually damp throughout the day, as the heat reflected from a dry surface is more harmful than the direct rays of the sun. Training, until their cultivation is better understood here, it is unnecessary to describe in detail. To know when is the best time to stop a certain variety, and which buds to remove to ensure the best results, can only be obtained by practical knowledge. Chrysanthemum culture has reached a high state of perfection at Home and the private gardener keeps his own special calendar which guides him as to the time, etc., for stopping the growth or removing the buds of each particular variety. This we have still to learn here.

At a certain period of the plant's growth a bud is formed at the apex, with the result that the main growth is arrested

and the plant immediately puts out several side growths. This bud is consequently known as the "Break-bud." This should be removed and the side growths rubbed off with the exception of three or four of the strongest growths which, being allowed to grow, eventually develop a bud at their apices which is known as the first crown bud. This may be retained and all side buds and growths rubbed off; or if this first crown bud is removed and the strongest shoot only is allowed to grow on, a second bud is formed at the apex of this secondary growth, which is known as the second crown bud.

The first crown bud developes a bloom of great size but devoid of grace, beauty and colour. The bulk of the Japanese Incurved, Reflexed and Anemone varieties are best produced from the second crown buds. It would, however, be risky to take the second crown bud unless your plants are started early in the season.

The Pompons and Aster-flowered kinds are best when flowered from the terminal bud, which being the last to develop on the plant denotes the termination of the plant's growth. These buds form in clusters. The largest and best shaped ones only should be selected; the rest should be rubbed off. Each plant should bear from 10 to 12 flowers.

Having no recent lists of Chrysanthemums from the Home growers I am unable to include in the attached list any newly introduced varieties, but the varieties mentioned, although considered ancient at Home, have not lost any of their beauty. They will be found good both in form and colour, and being less expensive will be better to experiment with. The enthusiast, after he has gained experience, can experiment with the newer varieties. The list attached gives the names of 12 good varieties of each section.

Incurved.—

Alfred Salter, delicate pink.
Empress of India, pure white.
Golden Beverley, rich yellow.
Her Majesty, silvery blush.
Lady Slade, lilac pink.
Mrs. Dixon, rich yellow.
Mrs. G. Rundle, pure white.
Jardin des Plantes, golden yellow.
Lord Derby, dark purple.
Prince Alfred, rose-crimson.
White Venus, pure white.
Queen of England, blush.

Recurved and Reflexed.—

Alma, rose-crimson.
Christine, peach.
D. Sharp, magenta-crimson.
Emperor of China, silvery white.
Garibaldi, bright red.
Golden Christine, golden-buff.
Julia Lagraviere, velvety-crimson.
King of Crimsons, rich crimson.
Mrs. Forsyth, pure white.
Prince Victor, dark red.

Anemone flowered.—

Emperor, blush.
King of Anemones, crimson-purple.
Empress, lilac.
Lady Margaret, white.
M. Chate, rich peach.
Princess Louise, delicate rose-lilac
Sunflower, sulphur yellow.
Firefly, bright scarlet.
Marie Stuart, lilac blush.
Miss Nightingale, blush.
Perle Marguérite, rich rose.
Madam Montels, white.

Pompons.—

Aurore Boreale, orange-brown.
Bob, dark crimson.
Crimson Perfection, bright crimson.
Florence, bright rose.
Gen. Canrobert, pure yellow.
President, rose-carmine.
Fimbriatum, rose-lilac.
Innocence, white.
Souvenir de Jersey, deep rose.
Snowdrop, pure white.
Boule de Neige, white.
Osiris, violet, yellow-tipped.

Japanese.—

Fair Maid of Guernsey, pure white.
Jane Salter, white, border with rose-lilac.
James Salter, clear lilac.
Mrs. B. Wynere, white, rose shade.
Rose Bonheur, rich violet.
Ed. Audiguier, maroon-purple.

Japanese.—continued.

Avalanche, pure white.
Gloriosum, rich yellow.
Boule d'Or, deep yellow.
La France, carmine.
Mrs. J. Wright, pure white.

Single flowered.—

Admiral Sir T. Symonds, yellow.
Jane, white.
Marigold, brownish-crimson.
Miss Ellen Terry, magenta.
Oceana, blush.
Blushing Beauty, blush pink.
Olivia, cinamon, chestnut shade.
Display, soft flesh white.
Freedom, white.
Morning Star, white.
Artus, soft red.
Mary Anderson, pink.

Financial Statement from October to December, 1907.

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
To Balance with the National Bank of India, Ltd., on the 30th September, 1907 ..	948	10	7				By Salary of Superintendent, Office and Garden Establishment ..	1,275	5	10			
,, Do. of Petty Cash on the 30th September, 1907 ..	200	0	0				,, Garden Coolies, Permanent 175-10-1 ,, Do. Temporary 98-15-6	274	9	7			
				1,148	10	7					1,549	15	5
,, Subscriptions from Members, "A" Class	658	0	0				,, Commission to the Superintendent for the 3rd Quarter, 1907				70	5	8
,, Subscriptions from Members, "B" Class	141	0	0				,, Purchase of seeds, plants, flowers, fruit trees, etc.				451	3	7
				799	0	0	,, Charges recoverable				178	1	0
,, Government Grant for the month of September, 1907.. ..	250	0	0				,, Garden requisites including pots, manure, etc.				104	10	0
,, Government Grant for the month of October, 1907	250	0	0				,, Discount on Mofussil Cheques				1	4	0
,, Government Grant for the month of November, 1907	250	0	0				,, Petty charges, including carriage hire, etc.				43	0	9
,, Government Grant towards the Flower Show of 1908 ..	500	0	0				,, Packing materials, including baskets, etc.				9	9	5
				1,250	0	0	,, Furniture and plant				106	12	0
							,, Books and Periodicals..				13	5	0
							,, Postage, Stamps and Telegrams				50	1	2
							,, Garden Expenses				15	12	0
							,, Advertisement Charges				44	3	0
Carried over..				3,197	10	7	Carried over..				2,638	3	0

Financial Statement from October to December, 1907—*continued.*

Particulars of Receipts.	Amount.			Total.			Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
Brought forward..				3,197	10	7	Brought forward..				2,638	3	0
To Sales of seeds, plants, flowers, fruit trees, etc. Bills account.	1,599	9	3				By Printing and Stationery ..	..	..	..	35	2	0
,, Sales of seeds, plants, flowers, fruit trees, etc. Cash Sales ..	224	15	9				,, Building	..	..	..	46	14	6
,, Sales of seeds, plants, flowers, fruit trees, etc., by V. P. P. ..	209	0	0				,, Red Hills Water-supply ..	..	..	..	174	1	5
							,, House, Water and Lighting Taxes.	..	..	..	37	4	5
							,, Economic Research account ..	..	..	..	26	2	0
							,, Travelling Expenses to the Superintendent	..	..	..	61	0	0
				2,033	9	0							
,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0	,, Security of Cashier S. Thathachary deposited with Messrs. Arbuthnot & Co.	..	..	..	750	0	0
,, Security of Cashier D. S. Gnanaprakasam value of Rs. 300 G.P. Notes	..	..	..	295	9	8	,, Security of D. S. Gnanaprakasam, Cashier, Rs. 300 G.P. Notes deposited with the National Bank in the name of the Treasurer ..	..	..	..	295	9	8
							,, Out-door work	..	..	..	74	5	0
							,, Audit Fees	..	..	..	95	0	0
							,, Balance of Petty Cash on hand on the 31st December, 1907 ..	200	0	0			
							,, Balance of General Cash on hand deposited with the National Bank of India, Ltd., on the 31st December, 1907 ..	1,843	3	3			
											2,043	3	3
Total Rupees ..	..	..	..	6,276	13	3	Total Rupees ..	..	..	..	6,276	13	3

Agri-Horticultural Society,
Madras,
Teynampett, 22*nd February*, 1908.

(Sd.) L. E. KIRWAN,
Honorary Secretary.

Audited and found correct. (Sd.) N. SUBRAHMANYAM,
Honorary Treasurer.
(Sd.) A. SALANSON,
Auditor.

The Proceedings of the Annual General Meeting of the Members of the Agri-Horticultural Society of Madras for the year 1907-1908, held on the 28th March, at 7 a.m.

ANNUAL GENERAL MEETING.

The following gentlemen were present:—

The Hon'ble Mr. Justice H. T. Boddam, *Chairman*..
The Hon'ble Sir Ralph Benson, *Kt.*, M.A., LL.B., I.C.S.
The Hon'ble Sir V. C. Desikacharri, *Kt.*
Dewan Bahadur N. Subrahmanyam, B.A., B.L., *Honorary Treasurer.*
M.R.Ry. T. Srinivas.
M.R.Ry. C. P. Ramasawmy Iyer, B.A., B.L,
M.R.Ry. G. Narayanasawmy Chettyar.
H. B. Peirce, Esq.
L. E. Kirwan, Esq., F.R.H.S., *Honorary Secretary.*

The Honorary Secretary presented his Report. The same having already been in circulation, it was proposed by Dewan Bahadur N. Subrahmanyam and seconded by Mr. C. P. Ramasawmy Iyer that it be taken as read.—*Carried.*

Mr. T. Srinivas proposed and Mr. H. B. Peirce seconded that the Report be adopted and the accounts passed.—*Carried.*

THE HONORARY SECRETARY'S REPORT.

Government Grant.—The monthly allowance of Rs. 250, and the extra grant of Rs. 500, and the special grant of Rs. 500 for the Flower Show, have been received. A Budget estimate for 1908-1909 was submitted in August, and the usual amount of Rs. 4,000 was sanctioned by the Government.

Finance.—The income of the Society during 1907 from all sources excluding the Government Grant amounted to Rs. 12,407-5-0, or Rs. 2,674-9-5 less than in the previous year. There has been a slight falling off in the amount of subscriptions collected, in spite of the membership having increased. In the Sales Department there has been an increase of Rs. 1,214-4-3. The large margin between the receipts of 1906 and the present year is accounted for by the fact that the Society has not had any large contracts for out-door work, as was the case in 1906.

Financial Statement

Particulars of Receipts.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A	P.
To Balance with Messrs. Spencer & Co., Ld., on the 31st December, 1906 ..	873	7	4			
,, Balance of Petty Cash on hand on the 31st December, 1906 ..	200	0	0			
				1,073	7	4
,, Security of Cashier S. Thathachari deposited with Messrs. Arbuthnot & Co. ..	..	..	..	750	0	0
,, Security of Cashier D. S. Gnanaprakasam value of Rs. 300 G. P. Notes..	..	..	..	295	9	8
,, Subscriptions from Members A Class. .	2,352	0	0			
,, Subscriptions from Members B Class..	564	0	0			
				2,916	0	0
,, Government Monthly Grant for the year 1907 ..	3,000	0	0			
,, Government Flower Show Grant for the year 1907 ..	500	0	0			
,, Government Extra Grant for the year 1907 ..	500	0	0			
,, Government Flower Show Grant for the year 1908 ..	500	0	0			
				4,500	0	0
,, Sale of Seeds, Plants, Flowers, Fruit Trees, etc., for the year 1907 ..	..	..	..	8,490	6	0
,, Out-door work of laying out Gardens, etc. ..	..	..	..	259	11	0
,, Flower Show Admission Tickets ..	..	..	..	741	4	0
Rupees ..	..	..	..	19,026	6	0

Agri-Horticultural Society,
Madras,
Teynampett, 22*nd February*, 1908.

(Sd.) L. E. KIRWAN,
Honorary Secretary.

for the year, 1907.

Particulars of Disbursements.	Amount.			Total.		
	Rs.	A.	P.	Rs.	A.	P.
By Salary of Superintendent, Office and Garden Establishment ..	..	..	..	5,023	5	4
,, Garden Coolies, Permanent and Temporary ..	..	..	..	1,101	4	10
,, Purchase of Seeds, Plants, Flowers and Fruit Trees, etc. ..	..	..	..	3,264	5	11
,, Charges Recoverable ..	..	..	..	1,102	4	4
,, Out-door work, labour, etc. ..	..	..	..	183	15	10
,, Travelling Expenses to the Superintendent ..	..	..	..	162	4	0
,, Commission to the Superintendent at 2½ % on receipts ..	..	..	..	278	8	3
,, Garden Requisites & Garden Expenses	..	..	..	1,248	6	0
,, Flower Show ..	..	..	..	1,300	5	11
,, Red Hills Water Supply ..	..	..	..	375	15	6
,, House, Water and Lighting Taxes .	..	..	..	74	8	10
,, Packing Materials ..	34	12	1			
,, Petty Charges and Sundries ..	77	1	10			
,, Postage, Stamps and Discount .	229	15	0			
,, Printing and Stationery, Books and Periodicals ..	657	12	6			
				999	9	5
,, Advertisement Charges ..	..	..	..	225	4	3
,, Furniture and Plant ..	..	..		196	7	9
,, Audit Fees ..	..	..	..	125	0	0
,, Economic Research ..	..	..	..	28	12	6
,, Building ..	..	..	..	115	14	9
,, Ichthemic Guano ..	..	..	..	36	3	2
,, Tools and Plant ..	..	..	..	35	0	6
,, Bonus to the widow of the late Head Maistry Manickam ..	..	..	..	60	0	0
,, Security of Cashier Thathachari deposited with Messrs. Arbuthnot & Co. ..	..	..	..	750	0	0
,, Security of Cashier D. S. Gnanaprakasam Rs. 300 G. P. Notes deposited with the National Bank of India, Ld., name of the Treasurer.	..	..	..	295	9	8
,, Balance of Petty Cash on hand on the 31st December, 1907 ..	200	0	0			
,, Balance of General Cash on hand deposited with the National Bank of India, Ld., on the 31st December, 1907 ..	1,843	3	3			
				2,043	3	3
Rupees ..	..	..	..	19,026	6	0

Audited and found correct.
(Sd.) A. SALANSON,
Auditor.

(Sd.) N. SUBRAHMANYAM,
Honorary Treasurer.

Obituary.—The Committee received with regret the sad news of the death of Mr. J. G. Smith on the high seas. Mr. Smith had been a Member of the Society for many years and had on several occasions been a Member of the Committee.

Weather.—The weather on the whole from a Horticulturist's view has been good. February and May were rainless months and in March and April only ·35 inches of rain fell; however the dews, which are so heavy in Madras during January and February did not fail us, and the land-wind was not so severe nor prolonged as in the previous year. Consequently, with the assistance of the Red Hills water and the wells, the gardens were kept in good condition. From June onwards rain fell in varying quantities, and from then up to the close of the year the weather may be said to have been seasonable. During the intervening days when no rain fell the sun was very severe, and without some means of protecting the tender growth of the plants it was found difficult to start gardening operations before August.

The Society's Register of Rainfall for the year, 1907 :—

Month.	Dates on which rain fell.	Quantity in Inches.
January ..	9th	0·15
February ..	*Nil.*	*Nil.*
March ..	12th	0·05
April ..	12th and 29th	0·30
May ..	*Nil.*	*Nil.*
June ..	14th, 15th, 16th, 22nd, 27th, 28th, 29th and 30th..	2·53
July ..	1st, 9th, 10th, 16th, 18th, 19th, 20th, 21st, 22nd, 24th, 26th and 27th	2·31
August ..	3rd, 5th, 7th, 9th, 11th, 12th, 13th, 14th, 22nd, 23rd, 25th, 26th, 28th, 29th and 31st	3·78
September ..	1st, 7th and 25th	0·48
October ..	1st, 2nd, 3rd, 4th, 5th, 22nd, 23rd, 24th, 25th 31st.	13·19
November ..	1st, 2nd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 14th, 16th, 17th, 18th, 20th, 26th and 27th ..	17·19
December ..	10th, 11th, 13th, 14th, 17th, 18th, 19th and 20th ..	5·86
	Total number of rainy days 76	45·84

Mean monthly and annual Meteorological Results in 1907 as registered at the Madras Observatory :—

MONTH.	Dry Bulb Thermometer.				Wet Bulb.		Sun Max. in Vacuum.	Min. on Grass.
	Mean.	Max.	Min.	Range	Mean.	Min.		
January	75·1	83·9	66·9	17·1	70·3	66·3	132·6	63·3
February	77·4	86·2	68·4	17·8	72·2	68·1	135·5	64·7
March	81·1	89·7	73·4	16·3	75·4	72·4	138·3	70·9
April	83·5	92·4	76·6	15·9	78·0	75·2	140·3	74·7
May	88·5	102·1	80·8	21·3	78·8	75·2	141·8	79·2
June	87·7	100·1	81·5	18·7	77·1	73·8	137·1	79·8
July	85·5	96·0	78·7	17·3	77·7	74·7	133·2	77·7
August	85·3	96·9	78·7	18·2	77·0	73·8	138·0	77·3
September	84·6	95·0	77·9	17·2	78·3	75·0	140·0	76·7
October	81·1	88·6	75·3	13·3	76·6	74·2	127·9	73·9
November	77·7	83·5	72·8	10·7	74·5	72·0	125·0	71·5
December	75·5	82·8	69·4	13·4	71·1	68·2	128·5	66·5
Annual.	81·9	91·4	75·0	16·4	75·6	72·4	134·9	73·0

Water-supply.—In spite of the increase of plants in the Nursery and Ornamental Gardens, the consumption of Red Hills Water was 6,02,900 less than that of last year. There has been a considerable saving of water in the Nursery Gardens, which is accounted for by the fact that the open channel has been replaced by iron pipes, particulars of which are noticed in the Progress Report of the Gardens.

Table showing the consumption of water for the Ornamental and Nursery Gardens for the 12 months ending the 31st December, 1907. (The quantities are in gallons.)

Months.	Ornamental Gardens.	Nursery Gardens.	Totals.	Totals for 1906.
January	165,300	128,900	294,200	280,800
February	275,700	112,100	387,800	463,600
March	398,300	111,000	509,300	318,200
April	357,800	132,900	490,700	430,900
May	..	..	473,100	542,800
June	155,400	113,200	268,600	141,000
July	139,100	131,000	152,200	381,700
August	83,600	*Nil.*	83,600	357,500
September	90,100	8,600	98,700	159,100
October	64,200	35,500	99,700	217,200
November	20,600	29,500	50,100	164,300
December	44,000	21,600	65,600	119,400
Totals ..	..	..	29,73,600	35,76,500

Library. The following books and periodicals which have been presented to the Society and which have been acknowledged in the Quarterly Proceedings have been bound and arranged in the Garden Library :—

The *Agricultural News of the West Indies*, Vol. V, 1906.

The Records of the Geological Survey of India, Vols. XXXI., XXXII and XXXIV.

The United States' Experimental Station Records, Vol. XVII, 1906.

The *Tropical Agriculturist and Agricultural Journal of the Ceylon Agricultural Society*, Vol. XXVII, 1906.

The Agricultural Bulletin of the Straits and Federated Malay States. Vol. V.

The Bulletin of the Imperial Institute, London ,Vols. II, III and IV.

The following were acquired by purchase :—

The *Gardener's Chronicle*, Vols. XXXVII, XXXVIII and XXXIX.
Curtis's Botanical Magazine, Vol. II.

Exchanges.—During the year under report the usual correspondence and exchanges with various Botanical Institutions and private persons have been maintained. We take this opportunity of thanking the following for their continued support and for the contributions they have made to the Society :—

	England.
London	The Director, Royal Botanic Gardens, Kew.
	The Director, Imperial Institute.
	The Secretary, Royal Horticultural Society.
	The Curator, Physic Gardens, Chelsea.
Richmond	Mr. L. R. Russell.
Cambridge	The Curator, Botanic Gardens.
Liverpool	The Director of Commercial Research.
	Scotland.
Edinburgh	The Director, Botanic Gardens.
Glasgow	The Director, Botanic Gardens.
	Ireland
Dublin	The Director, Botanic Gardens, Glasenvin.
	The Curator, Trinity College Gardens.
	West Indies.
Jamaica	The High Commissioner of Agriculture.
	The Director of Public Gardens and Plantations.
Grenada	The Curator, Botanic Station.
Antigua	The Curator, Botanic Station.

Africa.

Old Calabar	The Director of Agriculture.
Gold Coast	The Curator, Botanic Station.
Lagos	The Curator, Botanic Station.
Portuguese W. A.	The Curator, Botanic Gardens, Loanda.
Mozambique	Moris Ed. Luja, Manager, Rubber Plantation.
Natal	The Curator, Botanic Gardens, Durban.
	The Conservator of Forests.
Transvaal	The Director of Agriculture, Pretoria.

Australia.

New South Wales	The Director, Botanic Gardens, Sydney.
Queensland	The Director, Botanic Gardens, Brisbane.
South Australia	The Director, Botanic Gardens, Melbourne.

New Zealand.

Dunedin	The Superintendent, Public Parks.

India.

Calcutta	The Superintendent, Royal Botanic Gardens.
	The Reporter of Economic Products to the Government of India.
	The Superintendent, Practical Institute of Horticulture, Cossipore.
Bombay	The Superintendent, Victoria Gardens.
Baroda	The Superintendent, State Gardens.
Poona	The Superintendent, Empress Gardens.
Udaipur	The Superintendent, Sajjan Niwan's Garden.
Ootacamund	The Curator, Government Botanic Gardens.
Bangalore	The Superintendent, State Gardens, Mysore.
Coorg	M.R.Ry. C. K. Srinivasa Charlu.
Yercaud	B. Cayley, Esq., and C. J. Large, Esq.
Dindigul	J. Driver, Esq.
Coimbatore	F. A. Lodge, Esq.
Calicut	W. Francis, Esq., I.C.S.
Tinnevelly	R. D. Richmond, Esq.
Tanjore	M.R.Ry. Abraham Pandither.
Ottapalayum	The Deputy Tahsildar.
Tiruvangadi	The Deputy Tahsildar.
Travancore	The Director, Botanic Gardens, Trivandrum.
Madras	J. L. Walker, Esq., Madras Club.
	L. E. Kirwan, Esq., Nungumbakum.
	C. W. Wood, Esq., Madras Club.
	The Superintendent, Guindy Park.
	Dewan Bahadur N. Subrahmanyam.
	The Honorary Secretaries, Central Agricultural Committee.
Seychelles	The Curator, Botanic Gardens.
Villapuram	The Rev. Renger, Lutheran Mission.

Ceylon.

Colombo	The Secretary, Ceylon Agricultural Society.
Peradeniya	The Director and the Curator, Royal Botanic Gardens.

	Burma.
Rangoon	The Superintendent, Agri-Horticultural Society.
	Strait Settlements.
Singapore	The Director, Botanic Gardens.
	China.
Hong-Kong	The Superintendent, Botanic and Forest Department.
	Japan.
Tokio	The Director, Imperial University Botanic Gardens.
	France.
Paris	The Director, Botanic Gardens and Museum.
Antibes	The Director, Botanic Gardens.
	Germany.
Braunschweig	The Director, Botanic Gardens.
Karlsruhe	The Director, Botanic Gardens.
Berlin	The Director, Imperial Botanic Gardens.
	Russia.
Krakow	The Director, Botanic Gardens.
St. Petersburg	The Director, Imperial Botanic Gardens.
	Switzerland.
Zurich	The Director, Botanic Gardens.
	Austro-Hungary.
Lemberg	The Director, Botanic Station.
	North America.
St. Louis	The Director, Botanic Gardens, Missouri.
Washington	The Agrostologist, United States Department of Agriculture.
Mexico	Francis Eschanzier, Esq.
	South America.
Bolivia	The Hon'ble Gerrard Zalles.
Brazil	G. H. Wright, Esq., Sao Paulo.
	Dutch East Indies.
Buitenzorg	The Director, Botanic Gardens.

Flower Show.—The 68th Annual Flower Show was, as in the previous year, held in the Nursery Gardens on the last Saturday in January, a month earlier than in previous years. The Committee came to the conclusion, however, that this was too early for a great number of the exhibits, and fixed the date for the next Show for the third Saturday in February. A special feature of this year's Show, was the improved quality and variety of exhibits in the economic section. In other respects the Show differed very little from those of the preceding years.

His Excellency the Governor's Band, by kind permission, was in attendance from 8 A.M. to 12 noon and played an excellent selection of music.

A detailed report of the Show was published in the Society's Proceedings for the 1st Quarter, 1907.

Correspondence.—Correspondence with Botanic and other Public Gardens has been well maintained, and many exchanges have been effected. Correspondence in connection with garden work has steadily increased, the number of letters received being 3,196, and the number of registered replies were 2,016. The enquiries for information on economics have chiefly related to the cultivation of rubber, cotton and fibres.

New Introductions.—During the year under review the following plants, raised from seeds, or introduced as living plants have been added to the Society's collection :—

Anonaceæ	Anona Cherimolia (Cherimoyer).
Bixineæ	Flacourtia Ramontchi (Madagascar plum).
Malvaceæ	Hibiscus coccineus.
	,, malabota.
	,, Syriacus.
	,, pungens.
	,, varatifolius.
	,, grandiflorus (Sunset).
Sterculiaceæ	Bombax Malabaricum (white flowered).
Guttiferæ	Garcinia mangostana (Mangosteen).
	,, morello (Inferior Gamboge).
Malpighiaceæ	Galphimia Braziliensis.
Rutaceæ	Calodendron capense.
Leguminosæ	Crotalaria striata.
	Physostigma venenosum (Calabar Bean.)
	Erythrina latissima.
	,, caffra.
	Gleditschia Japonica.
	Acacia decurrens.
	,, Kraussiana.
	Baphia racemosa.
	Pachyrhizus angulatus (Yam Bean).
Lythraceæ	Lagerstrœmia reginæ.
Combretaceæ	Combretum erythrophyllum.
Passifloaraceæ	Carica gracilis.
Bignoniaceæ	Jacaranda ovalifolia.
Convolvulaceæ	Ipomæa alluvenia.
	,, digitata.
	,, chrysontha.
Apocynaceæ	Landolphia sp.
Labiateæ	Plectranthus parviflorus.
Acanthaceæ	Thunbergia Natalensis.

Euphorbiaceæ	Aleurites cordata.
	Manihot palmata.
Urticaceæ	Dorstenia contrajerva.
	Bœhmeria cuspidata.
	,, biloba.
	,, eugulosa.
	Celtis serotina.
Orchidaceæ	Cypripedium speciosum.
	Phalænopsis. Sp.
Scitamineæ	Canna discolor.
	,, humilis.
	,, comparta.
	,, orientalis.
Zingiberaceæ	Alpinia Malaccensis.
Amaryllidaceæ	Furcræa selloa.
	Crinum longifolium.
	,, giganteum.
	Agave rigida elongata.
Liliaceæ	Chlorophytum elatum (two forms of variegation).
	,, comosum.
	Yucca glauca, var. Karlsruhensis.
	,, filamentosum.
Palmaceæ	Loxococcos rupicola.
	Raphia Hookeri.
	Cocos Romanzoffiana.
	Trachycarpus Fortune.
	,, excelsa.
	,, Martiana.
	Thrinax parviflora.
	Ptychosperma augustifolium.
	Oncosperma filamentosa.
	Dictyosperma album.
	Pinánga kuhlii.
	Calamus angustifolius.
Cyclanthaceæ.	Carludovica Drudei.

Nursery Stock.—The nurseries have this year been extended, a portion 150 feet long by 75 feet in breadth has been enclosed with wire netting, 6 feet high, for the purpose of protecting the rarer plants from thieves. Greater facilities have been made for economising labour in watering by making two more cisterns. There are now four cisterns which are connected with iron piping; and their levels have been so arranged as to allow the cisterns to overflow from one to the other. Previously the water was conducted through an open earthen channel. The new arrangement should result in a great saving of water.

The propagating department has been improved by the addition of 35 feet of plant frames. Excellent results can be obtained with these frames when the *Mali* has thoroughly

learned how to use them. With the old system of propagation 25 % to 30 % of rooted plants from a bed of cuttings was considered a good average. With the help of frames, however, propagation can be carried out almost the whole year round and in quicker time, and 90 % of rooted cuttings can be counted upon.

The following table shows the number of plants in the Nursery on the 31st December, 1907 :—

Climbers ...	1,943	Palms ...	2,842
Trees	5,171	Cuttings in beds ...	6,000
Flowering shrubs ...	3,100	Tree seedlings in pans ...	1,500
Foliage plants ...	2,800	Palm ,, ,, beds ...	3,000
Economics ...	9,070		

Sales.—The following will show the number and quantity of plants, seeds, etc., sold, distributed to Members and presented to Botanic and other Public Gardens during the year under review :—

Description.	Members.	Botanic Gardens.	Sold.	Totals.
Bulbs	2	..	550	552
Caladiums	108	..	109	217
Canna	538	4	357	899
Casuarina seeds ..	¼ lb.	..	19 lbs. 7 ozs.	19 lbs. 11 ozs.
,, plants ..	..	..	2,675	2,675
Climbers	536	20	479	1,035
Crotons	261	24	433	718
Economic plants ..	321	160	4,668	5,149
,, seeds in packets.	..	20	10	30
,, ,, ,, weight..	12 lbs. 7½ ozs.	1 oz.	452½ lbs.	464 lbs. 10 ozs.
Ferns	175	..	130	305
Flower seeds in packet ..	3,747	..	2,141	5,882
Guinea grass roots ..	324	..	150	474
Hurriali grass seeds ..	½ lb.	..	39 lbs.	39 lbs. 8 ozs.
,, ,, roots ..	..	..	2,300	2,300
Indigenous seeds in packets	8	6	74½	88½
,, ,, ,, weight.	5¼ lbs.	10 ozs.	11 lbs. 7½ ozs.	17 lbs. 1½ oz.
Inga dulcis seeds ..	8½ lbs.	..	1,764 lbs. 14 ozs	1,773 lbs. 6 ozs.
Lucerne seeds ..	10 lbs. 2 ozs.	..	33 lbs. 9 ozs.	43 lbs. 11 ozs.
Mango Graft, Madras varieties	..	9	27	36
,, ,, imported varieties	41	32	305	378
Miscellaneous plants ..	2,651	201	2,174	5,026
Palms	746	79	362	1,187
Para seeds	..	..	5,000	5,000
,, plants	27	12	2,852	2,891
Paspalum dilatatum roots.	125	6	100	231
Pineapple plants ..	28	39	46	113
Rose plants	86	..	70	156
Vegetable seeds in packets	1,095	10	641	1,746
,, ,, by weight.	160 lbs. 6 ozs.	1 lb.	133 lbs. 14½ ozs.	294 lbs. 4½ ozs.

PROGRESS AND CONDITION OF THE GARDEN.

Experimental Gardens.—*Agave rigida var. Sisalana.* Several plants poled during the year produced bulbils which were supplied to Mr. Kirwan, in accordance with the agreement entered into with him. He was also supplied with suckers of this Agave. At the time of writing 17 more plants are poling and it is hoped that they will produce another 30,000 bulbils. Towards the close of the year, several plants were attacked by a fungus, specimens of which have been forwarded to the Imperial Mycologist, Pusa, whose report on the same will be published when received.

The experiments with cotton cultivation were discontinued owing to the unsatisfactory nature of the soil and the difficulties in watering that part of the gardens. A small plot of the Rivers Sea Island variety has, however, been grown in the Society's Nursery. Enquiries have been made for this variety, and to enable cultivators to give it a fair trial an indent for 1 cwt. of seed of it has been forwarded to Sir Daniel Morris, High Commissioner of Agriculture, West Indies.

A consignment of camphor seeds was received from Japan early in the year. About two-thirds of the seeds were distributed to Planters on the hills, the balance being germinated in the gardens; and there are now 4,000 plants in the Nursery for sale and distribution.

The Society received several commissions to procure Para rubber seeds from Ceylon for Planters on the hills. Our system of repacking the seeds in charcoal dust and between layers of wet paper gave excellent results. Several Planters have complained that seeds received direct from Ceylon arrive in a dry state, and consequently the percentage of seed which germinated is considerably reduced.

A consignment of the "Queen Pineapple" was received from the Curator, Botanic Station, Mauritius, a few have been distributed and there are still 50 left on hand for distribution. The demand for the better varieties of this fruit is apparently on the increase. An application having been received from the President of the Agricultural Association, Palghat, for information regarding their cultivation, uses and the best varieties to cultivate, all available information was supplied.

A few seeds of *Funtumia elastica* were received from Mons. Luja, French Congo, but unfortunately they failed to germinate. Seed of a *Landolphia*, new to Madras, was received from

the same source, and these proving successful there is now a large stock of plants on hand for distribution.

Ornamental Gardens.—This portion of the Gardens has been kept in a satisfactory condition. The walk leading from the office to the centre of the gardens was re-arranged, and the somewhat awkward curve done away with. A bed by the water tower was planted with plants of *Plumbago capensis* in August, which at the present time are growing remarkably well.

The new Nymphæas, brought out at the latter end of 1906, flowered during the year. Specimens were on show at the Meetings of the Committee and were much admired, being far better than any seen before in Madras.

The *Corypha umbraculifera*, a reference to which was made in the last Annual Report, fruited heavily, and enquiries for seed were received from several Botanic Gardens, including one in Australia. All were complied with and in addition a large case of seed was sent to Lt.-Col. D. Prain, Director, Royal Botanic Gardens, Kew.

Planting.—The following is a list of plants put into the open ground during the year under report :—

In the Border East of the Palm House.

Piper chaba	These plants were received from the Royal Botanic Gardens, Kew, in the year 1905-06.
Erythroxylon coca, var. granatensis	
,, ,, var. sprucianum	
,, ovatum	
Cinnamomum brevifolium	
Scutelaria masciana	
Coffea sp. from. Angola	
,, ,, var. Costa Rica	
,, robusta	
Musa ovata-rosea	
Cola vera	
Citrus abufura	
,, medica var. Mitford's lemon	
Mascaranhasia elastica	
Tabernæmontana Barteri	
Erythrochiton Brasiliensis	
Macadamia ternifolia	
Chrysophyllum cerasiferum	
Mamea Americana	
Eleagnus macrophylla	Received from Mr. L. Russell, Nurseryman Richmond, Surrey, in 1906.
,, pungens	
Tamarix Germonica	
,, Japonica plumosa	
Plumbago rosea improved	

In the Border Surrounding the Wells by the Water Tower.

Ardisia pickeringia Strychnos mackeni Podocarpus milangiana Sarcocephalus Russeggeri Myristica fragrans Cæsalpinia melanocarpa Sapotaceous tree, from Uganda.	Received from the Royal Botanic Gardens, Kew, in 1905-06.

Planted in No. I Plant House.

Vanilla pompona „ lutescens Adenacalyma intida	Received from the Royal Botanic Gardens, Kew.
Dipladenia Boliviensis Aralia reticulata „ elegantissima „ leptophylla	Received from Mr. L. Russell, Nurseryman, Richmond, Surrey, in 1906.

Planted in the Palmetum.

Stevensonia grandiflora Martinezia caryotæfolia.	Raised from seeds.

Planted on the Lawn South of No. I Plant House.

Diospyros microphylla.	Received from Travancore in 1905.

Planted in the Line of Climbers in the Broad Walk of the Nursery.

Cryptostegia Madagascariensis	Received from the Royal Botanic Gardens, Kew.

The following economic plants, planted out in 1906 in the Border East of the Palm House, are doing well. The position is a sheltered one, and water in this part of the Gardens is abundant, so that the conditions in every way appear suitable.

Garcinia Mangostana.

Myristica fragrans. (*Nutmeg.*)

Persea gratissima.

Coffea Wighii and Zanquebariæ.

Outside Work.—The Quibble Island Cemetery and the Government Central Museum Gardens, which are under the Society's control, have been kept in fair order.

During the year an application was made by the authorities of the Madras Railway Company for the services of the Superintendent to make a tour of their system to report on the possibilities of Horticulture and Arboriculture in their Stations. Mr. Cavanagh's services were accordingly lent to the Company

for one month. The results of these tours should benefit the Society's business, the object in view being to improve the Station gardens by judicious planting.

Honorary Secretary.—Mr. L. E. Kirwan held the appointment of Honorary Secretary during the year under report.

Honorary Treasurer.—Dewan Bahadur N. Subrahmanyam continued to hold the appointment of Honorary Treasurer.

Committee.—There have been no changes in the Committee. The gentlemen elected at the Annual Meeting held on the 30th March, 1907, continued in office throughout the year.

Ex-officio Members.—The Hon'ble Mr. J. N. Atkinson, C.S.I., I.C.S., held this office throughout the year.

Resignations and Deaths.—10 A Class and 14 B Class Members resigned during the year under report, and there were three deaths.

New Members.—20 A Class and 19 B Class were added to the list of members during the year. The year opened with a membership of 180 and closed with 210 on the rolls, there being thus an increase of 18 Members.

Resolutions.—The following Resolutions were passed :—

1. That the Committee wish to place on record their thanks to Government for their continued support.

2. The Committee have much pleasure in recording their thanks to the Honorary Secretary and Treasurer for their valuable services during the year.

3. The revised rules, as passed in Committee were considered and accepted.

4. That the following gentlemen elected at the Meeting be asked to serve on the Committee during the ensuing year.

The Hon'ble Justice Sir Ralph Benson, *Kt.*, M.A., LL.B., I.C.S., Mr. M. E. Couchman, B.A., I.C.S., Mr. P. F. Fyson, B.A., F.L.S., Mr. G. Narayanasawmy Chettyar, The Hon'ble Sir V. C. Desikacharri, *Kt.*, The Hon'ble Mr. Justice L. C. Miller, I.C.S., Mr. C. A. Barber, M.A., F.L.S., Lt.-Col. W. D. Gunn, M.R.C.V.S., I.C.V.D., Mr. H. A. Nelson, Mr. H. B. Peirce, Mr. L. E. Kirwan, *Honorary Secretary*, and Dewan Bahadur N. Subrahmanyam, B.A., B.L., *Honorary Treasurer.*

The Meeting terminated with a vote of thanks to the Chairman.

Members of the Society on the 31st December, 1907.

PRESIDENT:

His Excellency The Hon'ble Sir Arthur Lawley, K.C.M.G., G.C.I.E.

HONORARY MEMBERS:

L. A. Bernays, Esq. | General J. P. Ferrier.

Sir J. D. Hooker, C.B., etc.

EXTRAORDINARY MEMBERS:

Cox, Col. H. W. H.
Lawson, Sir Charles A., *Kt.*
Steavenson, Joseph, Esq.
West, Henry C., Esq.
Moore, Col. Sir George.
Walker, J. L., Esq.

LIFE MEMBER:

Houghton, H. E., Esq., F.L.S , F.R.B.S., etc. .

ORDINARY MEMBERS (A CLASS).

1 Adam, John, Esq., M.A.
2 Andrew, The Hon'ble Mr. J., I.C.S.
3 Arbuthnot, P. B., Esq.
4 Atkinson, The Hon'ble Mr. J. N., C.S.I., I.C.S.
5 Bannerman, Lt.-Col. W. B., I.M.S.
6 Barber, C. A., Esq., M.A., F.L.S.
7 Benson, The Hon'ble Justice Sir Ralph, *Kt.*, M.A., L.L.B., I.C.S.
8 Bickley, G. W., Esq.
9 Boddam, The Hon'ble Mr. Justice, H. T.
10 Bonham-Carter, Major H., R.E.
11 Bradley, The Hon'ble Mr. H., C.S.I. ,I.C.S.
12 Breeden, Rev. J.
13 Clarke, F. S., Esq.
14 Coster, R. J., Esq.
15 Cotton, C. W. E., Esq., I.C.S.
16 Couchman, M. E., Esq., B.A., I.C.S.
17 Desikacharri, The Hon'ble Sir V. C., *Kt.*
18 Driver, J., Esq.
19 Elliot, Major R. H., M.D., D.SC., F.R.C.S., D.PH., I.M.S.
20 Falconer, Capt. S. E., I.S.M.D.
21 Gaitskell, Mrs.
22 Gajapathy Rajah Kripamaya Deb Ananga Bheema Kesari.
23 Gill, Esq., R. P.
24 Greenall, R., Esq.
25 Griffith, H. F., Esq.
26 Gunn, Lt.-Col. W. D., M.R.C. V.S., I.C.V.D.
27 Hammick, The Hon'ble Mr M., C.S.I., C.I.E., I.C.S.
28 Hannay, A. L., Esq., I.C.S.
29 Hatchell, D. G., Esq.
30 Henderson, Miss A. E.
31 Hugh, Fraser, Esq.
32 Jackson, G. H. B., Esq., I.C.S.
33 Janakiram Pantulu, K., M.R.Ry.
34 Jones, R. Ll., Esq., M.A., F.R.A.S.
35 Jagga Row Garu, Sri Rajah, A. V., F.R.A.S., etc.
36 Krishnan, M., M.R.Ry., B.A., B.L.
37 Kumara Rajah of Challapalli.
38 Leech, A. J., Esq.
39 Lodge, Miss
40 Loftus-Tottenham, A. R., Esq., B.A., I.C.S.
41 Lopes, The Right Rev. J.
42 Lynn, The Hon'ble Mr. V. G.
43 Maharani Lady Gajapathy Row Garu, H. H. Sri
44 Maharajah of Travancore, H. H., G.C M.G., G.C.I.E.
45 Maharajah of Bobbili, H. H., C.I.E.
46 Malcolm, Bernard, Esq.
47 Marriot, E. G., Esq.
48 Marshall, D., Esq.
49 McMillan, E. A., Esq.
50 Menzies, R. T., Esq.
51 Millar, A. P., Esq.
52 Miller, The Hon'ble Mr. Justice L. C., I.C.S.
53 Miller, Rev. J. X.

54 Mitchell, H. H. G., Esq.
55 Mudukrishna Yachandra Bahadur, Rajah.
56 Napier, A. S., Esq.
57 Narayana Rao, D. L., M.R.Ry.
58 Narayana Iyer, R., M.R.Ry.
59 Nelson, H. A., Esq.
60 Oakes, A. W. D., Esq.
61 Oakes, W. H., Esq.
62 Ormerod, H., Esq
63 Orr, Sutherland, Esq.
64 Palmer, E. B., Esq.
65 Paterson, G. A., Esq.
66 Pinhey, A. F., Esq., I.C.S.
67 Pollard, The Rev. C.
68 Powell, A. J., Esq.
69 Rajah of Devarakota.
70 Rajah of Kurupam, The Hon'ble.
71 Rajah of Pithapuram.
72 Rajah of Punganur.
73 Rajah of Wonpurthy State.
74 Rajah Valia Nambidi of Kollengode, The Hon'ble.
75 Ramasawmi Iyer, C.P., M.R.Ry., B.A., B.L.
76 Ramanujam Chetty, C., M.R.Ry.
77 Read, Archibald, Esq., B.A.
78 Reid, Marshall, F., Esq., C.I.E.
79 Richards, Thomas, Esq.
80 Romilly, A. G., Esq.
81 Rutherford, E. W., Esq.
82 Scott, E. Esq., I.C.S.
83 Sim, The Hon'ble Mr. H. A., C.I.E., I.C.S.
84 Sinclair, G. H., Esq.
85 Singara Babu, E., M.R.Ry.
86 Smith, C. Michie, Esq., B.SC., F.R.S.E., F.R.A.S.
87 Smith, P. Bosworth, Eq.
88 Sorabjee A. Merwanjee Eranee, M.R.Ry.
89 Sowden, C., Esq.
90 Srikanteswara Iyer, C., M.R.Ry., B.A., B.L.
91 Srinivasaraghava Iyer, L., M.R.Ry.
92 Straker, C. H., Esq.
93 Strange, A. B., Esq.
94 Stuart, The Hon'ble Mr. A. E. Castlestuart, I.C.S., F.L.S., etc.
95 Subrahmanyam, N., Dewan Bahadur, B.A., B.L.
96 Symonds, A. P., Esq.
97 Tawker, Nanasunker, M.R.Ry.
98 Tawker, S., M.R.Ry.
99 Thompson, H. J., Esq.
100 Turner, W. A., Esq.
101 Twigg, Mrs.
102 Vaughan, Mrs. C. S.
103 Venkataramados Naidu, S., Dewan Bahadur.
104 Venkatachalam, M., M.R.Ry.
105 Venkataratnam, V., M.R.Ry.
106 Vernon, H. A. B., Esq., B.A., I.C.S.
107 Vincent, J. R., Esq.
108 Walker, E. Campbell, Esq.
109 Wallis, The Hon'ble Mr. Justice J.E.P.
110 Weir, The Hon'ble Mr. C. J., I.C.S.
111 Whitehead, The Rt. Rev. H., D.D., Lord Bishop of Madras.
112 White, The Hon'ble Chief Justice Sir C. Arnold, *Kt.*
113 Wickham, H. C., Esq.
114 Wolf, Edward, Esq.
115 Wyllie, Lt.-Col. J. A., I.A.
116 Yorke, A. J., Esq.
117 Zemindar of Ettiapuram.
118 Zemindar of Oothukuli.
119 Zemindar of Polavaram.
120 Zemindar of Telaprole, The Minor.

Ordinary Members (B Class).

1 Agar, B., Esq.
2 Aubert, L., Esq.
3 Abdul Rahman Sahib, S.K.I.
4 Bashyam Reddiar, V., M.R.Ry.
5 Breithaupt, E. M., Esq.
6 Coleridge, F. A., Esq., I.C.S.
7 Chambers, G. A., Esq.
8 Cayley, B., Esq.
9 Carruthers, Lt.-Col. H. St. C., I.M.S.
10 Carysfort Loch, Mrs. J.
11 Clerk, H.E., Esq.
12 Chengappa, A. B., M.R.Ry.
13 Desikachari, T., M.R.Ry.
14 Davy, H. F., Esq.
15 Dorasawmi Mudalyar, W. M., M.R.Ry.
16 Duncan, C., Esq.
17 Ethirajulu, Naidu, P., M.R.Ry.
18 Fyson, P. F., Esq., B.A., F.L.S.
19 Foulkes, Mrs.
20 Fisher, T., Esq.
21 Giffard, Major G. G., I.M.S.

22 Haskings, J., Esq.
23 Houghton, G., Esq.
24 Holton, E. P., Esq.
25 Hanumantha Rao, B., M.R.Ry., B.A.
26 Hanumantha Rao, K., M.R.Ry.
27 Josselyn, J., Esq.
28 Kirwan, L. E., Esq., F.R.H.S.
29 Khirod Chandra Roy, M.R.Ry.
30 Krishna Rao, M.R.Ry.
31 Karney, W. Esq.
32 Lakshmi Varahu Iyengar, C., M.R.Ry.
33 Lawson, A. E., Esq.
34 Large, J. C., Esq.
35 Loane, S. J., Esq., M.I.M.E., A.M.I.C.E.
36 MacGregor, Miss
37 Macphail, Rev. E. M.
38 Morres, W., Esq.
39 Muthukumarasawmi Pillay, I. S., M.R.Ry.
40 Maha Deva Mudaly, V., M.R.Ry.
41 Mayhew, A., Esq., B.A.
42 Nallasawmi Pillay, J. M., M.R.Ry.
43 Natesa Iyer, S., M.R.Ry.
44 Narayanasawmi Chettyar, G., M.R.Ry.
45 Narasimha Rao Pantulu, V., M.R.Ry.
46 Oakley, F. H., Esq.
47 Potts, Rev., R. U., M.A.
48 Playfair, H. M., Esq.
49 Partridge, J. G. D., Esq., I.C.S.
50 Peirce, H. B., Esq.
51 Padday, H. L., Esq.
52 Pavakiswara Rao, B., M.R.Ry.
53 Ramanajam Chettyar, T. R. V., M.R.Ry.
54 Rajah Iyer, A. K., M.R.Ry.
55 Ramachandra Iyer, K. S., M.R.Ry.
56 Ramanayanar, V. K., M.R.Ry.
57 Ramunni Menon, K., M.R.Ry., B.A.
58 Rowsell, Mrs. Norman.
59 Sivasawmi Iyer, The Hon'ble Mr. P. S., B.A., B.L.
60 Sundarasa Rao, M.R.Ry.
61 Sreenivasa Pillay, K. S., M.R.Ry.
62 Sreeniyasacharry, G., M.R.Ry.
63 Subba Rao, M. K., M.R.Ry.
64 Sharp, A. H., Esq.
65 Scott, H. R., Esq.
66 Srinivas, T., M.R.Ry.
67 Scudder, Rev. E. C.
68 Stringfellow, Miss M. P.
69 Swaminatha Iyer, T. D., M.R.Ry.
70 Tod, W. H., Esq.
71 Thirumal Rao, V., M.R.Ry.
72 Tambisawmi Mudaly, A., M.R.Ry.
73 Tipping, P. G., Esq.
74 Thiruvenkatacharri, T. T., M.R.Ry., B.A., B.L.
75 Van-Geyzel, Lt.-Col. J. L., M.B., F.I.C., F.C.S., I.M.S.
76 Vaughan, N. J., Esq.
77 Venkatasubba Naidu, S., M.R.Ry.
78 Virasalingam Panthulu, K. Row Bahadur.
79 Webster, J., Esq.
80 Yates, J. A., Esq.